



THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Committee Item INFORMATION

Engineering, Operations, and Technology Committee

4/13/2026 Committee Meeting

6c

Subject

Pure Water Southern California Quarterly Update

Executive Summary

Pure Water Southern California (PWSC) continues to make steady progress to advance the environmental planning, engineering studies, Climate Adaptation Master Plan for Water (CAMP4W) assessment, financial analysis, and collaboration with member agencies and program partners to prepare for upcoming board decisions. This report provides updates on various activities and next steps to advance PWSC.

Fiscal Impact

Not applicable

Applicable Policy

Not applicable

Related Board Action(s)/Future Action(s)

February 2026 – Certify the PWSC environmental impact report and approve PWSC for California Environmental Quality Act (CEQA) purposes

Mid-2026 – Award equipment procurement contracts to furnish major process equipment for the direct potable reuse demonstration testing facility

Fall 2026 – Consider starting the initial program stage following CAMP4W assessment; and amend program management consulting agreement for AECOM and Brown & Caldwell Joint Venture to support PWSC

Details and Background

Background

PWSC is a large regional recycled water program that will provide a new local source of safe and reliable drinking water for Southern California. PWSC currently focuses on five key areas: program management, environmental planning, planning for an advanced water purification facility (AWPF), demonstration testing, and preliminary design of the initial pipeline reaches. Staff is also engaged in collaboration with member agencies and other program partners to develop agreements for water purchase.

PWSC will produce up to 150 million gallons per day of purified water from the AWPF in Carson for indirect potable reuse (IPR) and direct potable reuse (DPR) applications. The AWPF will purify treated wastewater from the Los Angeles County Sanitation Districts' (Sanitation Districts) A. K. Warren Water Resource Facility using membrane bioreactors (MBRs), reverse osmosis (RO), and ultraviolet/advanced oxidation (UV/AOP). With its expertise in biological wastewater treatment, the Sanitation Districts will be responsible for implementing pretreatment, including the MBR facilities. The PWSC conveyance system consists of the backbone pipeline that would extend approximately 39 miles from the AWPF to the Main San Gabriel Basin, multiple pump stations,

repurposing an existing pipeline, and constructing a new DPR pipeline to convey water from the backbone eastward for raw-water augmentation at Metropolitan's Weymouth plant.

Program Updates

The PWSC team was engaged in the following key activities during this reporting period:

- **Environmental Planning** – In February 2026, the Board certified the final environmental impact report and approved PWSC for CEQA purposes. The notice of determination was also filed with the State's Office of Planning and Research and the County Clerk to initiate a 30-day statute of limitations for legal challenges.
- **Grant Status** – Staff continued coordination and grant reporting efforts with the United States Bureau of Reclamation for the \$125,472,855 Large-Scale Water Recycling Program grant and the \$5 million WaterSMART Title XVI Planning Grant. Metropolitan has received approximately \$25.5 million to date from these grants. The \$80 million state appropriation is also used to support the current phase of program work; as of the end of January, approximately \$51 million of the state appropriation has been spent.
- **2025 Program Cost Update** – A technical memorandum was prepared (**Attachment 1**), summarizing the updated program cost information presented to the Board in September 2025. It includes the detailed cost estimates for the treatment and conveyance facilities, cash flows for various program staging options, and Metropolitan's response to comments from the City of Anaheim.
- **Demonstration Testing** – Staff continued testing the IPR processes. Five equipment procurement packages were advertised for DPR testing, including membrane filtration/reverse osmosis, UV/AOP, ozone with granular and biological activated carbon, lime stabilization system, and carbon dioxide system. Staff is evaluating the bids received and plans to return to the Board this summer to award one or more of these procurement contracts. Construction and installation are anticipated to commence in 2027. Information from this DPR testing will allow Metropolitan to assess both treated-water augmentation and raw-water augmentation alternatives.
- **DPR Planning** – Staff has conducted a focused DPR study to assess the implementation strategies. Potential options were identified to match system demands, optimize infrastructure requirements, and minimize potential operational impacts. The preliminary findings will be presented at a board workshop currently scheduled for mid-2026.
- **Design Development** – The PWSC Conveyance Facilities Conceptual Design Report for the entire conveyance system has been completed and is available on Metropolitan's public website: <https://www.mwdh2o.com/building-local-supplies/pure-water-southern-california/technical-resources/>. Preparation of bid documents for the AWPf progressive design builder (PDB) and one or more Construction Manager/General Contractors (CM/GC) for the first two reaches is also underway. Staff would be ready to advertise these packages after the CAMP4W assessments have been completed, if the Board decides to proceed with the design of the initial stage of PWSC.

Upcoming Technical Studies

Several technical studies are underway to address PWSC planning needs, as well as the specific questions previously raised by the Board, including:

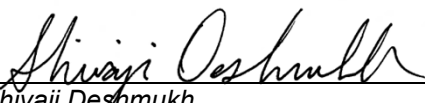
- Operating Scenario Analysis
- Envision/LEED Certification Analysis
- DPR Implementation Analysis
- Pump-in Policy Considerations for DPR

Next Steps

The CAMP4W assessment will continue, including assessments of staged program implementation, in parallel with other ongoing PWSC efforts. Subsequent board informational items on PWSC will report on technical studies, the CAMP4W assessment, and responses to board information requests. These activities are designed to provide the key information necessary for the Board to make informed implementation and funding decisions regarding PWSC.



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3/24/2026
Date



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3/24/2026
Date

**Attachment 1 – Pure Water Southern California Program 2025 Cost Update
Technical Memorandum**

Ref# es12709360



Pure Water Southern California

2025 Program Cost Update

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OF SOUTHERN CALIFORNIA**

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Executive Summary

Pure Water Southern California (PWSC) is a proposed partnership between the Metropolitan Water District of Southern California (Metropolitan) and the Los Angeles County Sanitation Districts (Sanitation Districts) to provide a new, high-quality local water source that would be reliable, cost-effective, and climate-change resilient. PWSC would include the Advanced Water Purification Facility (AWPF), owned and operated by Metropolitan, and the Pretreatment and Membrane Bio-Reactors Facility (Pretreatment and MBR), owned and operated by the Sanitation Districts. PWSC would deliver purified water for indirect and direct potable reuse applications.

PWSC program delivery would be developed in two phases—Phase 1 (115 million gallons per day [MGD]) and Phase 2, the ultimate buildout to 150 MGD. In addition, Metropolitan is considering additional staging options as a subset of Phase 1, which would include 45 MGD, 75 MGD, Hybrid 45/75 MGD, and 115 MGD. Both phases, as well as the staging options for Phase 1, are addressed in this document.

Metropolitan's PWSC program management consultant (PMC), a joint venture between AECOM and Brown and Caldwell, has prepared this 2025 Program Cost Update to document the basis for the 2025 revisions to the PWSC cost estimates, which were presented at the Board Workshop on September 23, 2025. This document identifies the project delivery schedules tied to cost estimates and cash flow projections that were used for planning under the potential staging options mentioned above. The revised cost estimates will inform both Metropolitan and the Sanitation Districts for a staging decision, the preparation of AWPF Progressive Design Builders (PDBs) and Conveyance System Construction Manager/General Contractor (CM/GC) procurement process, and capital and operations and maintenance (O&M) budget planning.

This 2025 Baseline Budget establishes program/project delivery schedules, cashflow needs, spending curves, and overall program delivery financial needs for each of the staging options. It also compares prior 2018 and 2023 Baseline Budget estimates for Phase 1 and Phase 2, highlighting cost estimate changes primarily related to inflation, design refinements, materials, supply chain costs, regulatory compliance requirements, and COVID-19 cost impacts.

The cost estimates were reviewed independently by the PMC and benchmarked against historical data, vendor quotes, and comparable large-scale water reuse projects. Sensitivity analyses were performed to account for escalation, market volatility, and scope adjustments.

The cost estimate for Phase 1 reflects an increase from the 2023 estimate, from \$4.9 billion to \$8.3 billion, and from \$5.8 billion to \$9.8 billion for the full program build-out (Metropolitan costs only). The key drivers for this cost increase are highlighted below and detailed in later sections of this document.

Key 2025 Cost Increase Drivers

- **Conveyance System:** Costs increased from \$1.8 billion to \$3.7 billion in Phase 1, primarily related to the higher cost of steel and trenchless operations, as well as to design refinements and adjustments to contractor markups to be consistent across the program.
- **Advanced Water Treatment (AWT):** Costs increased from \$0.9 billion to \$1.1 billion primarily because of scope refinements, escalation since 2023, materials costs, and market conditions.
- **Indirect Costs, Allowances and Contingencies:** Costs increased from \$1.8 billion to \$3.4 billion because of an increase in the assets' capital costs and allowances for contingency, program management, and engineering, which are all calculated as percentages of the higher construction costs. In addition, allowances have been included for tariffs and Build America/Buy America Act (BABAA) compliance as a percentage of the total program costs.

Methodology and Assumptions:

The Baseline Budget cost estimates were developed in accordance with Association for the Advancement of Cost Engineering International (AACE) Class 4 and 5 standards, based on the design maturity level of each asset (AWT, Pretreatment/MBR, Conveyance System, and Recharge Facilities). The conceptual design efforts to date for each asset resulted in setting the AWT's maturity level between 10 and 12 percent, and the conveyance system's maturity level between 5 and 10 percent. This resulted in a 30 percent contingency used for AWT and Conveyance Reaches 1 and 2 (R1 and R2) and a 35 percent contingency for the Pretreatment/MBR, Conveyance Reaches 3–8 (R3–R8), and Recharge Facilities. The 2025 Baseline Budget was calculated using the PWSC Asset's Costing Accuracy Ranges, adjusting previous cost estimates that were performed in 2023 and 2022, using the Construction Cost Index for the City of Los Angeles to 2025 dollars, and adding allowances (25 percent for engineering, construction management, and indirect costs; and 5 percent for program management [a typical range is 5 to 15 percent]).

Additional costs were factored in for BABAA and regulatory compliance requirements under federal, State, and local guidelines. However, Metropolitan may be able to apply for a BABAA waiver for specialized equipment primarily manufactured outside the United States, including much of the Pretreatment/MBR, Ultraviolet (UV), Ozone, and other specialty process equipment. If appropriate, this waiver application would be completed by the AWPf PDBs and Conveyance System CM/GCs, because the waivers would be design-specific and typically would take up to a year or more to be approved. Any cost reductions because of BABAA waiver approval would be reflected in the Guaranteed Maximum Price proposals.

Capital Cost Development

The 2025 Baseline Budget capital cost modeling that was used to develop delivery schedules, cash flows, and spending curves incorporated new bottom-up engineering conceptual construction cost estimates, prepared by the conveyance conceptual design consultant for the entire PWSC Conveyance System. For the AWT, the 2023 construction cost estimate, previously prepared by the AWT conceptual design consultant based on the Conceptual Facilities Plan, was escalated to 2025 dollars, based on the construction cost index for the City of Los Angeles, which is the basis for the updated 2025 Baseline Budget. The cost model built on and validated changed and unchanged AWT design and scope elements, using peer installations, current cost estimating manuals, and actual built construction data. A summary of the design criteria, cost estimation responsibilities, and methodologies that were applied across major program components is shown in Table ES-1.

O&M Cost Development

AWPF O&M costs include power, chemical, maintenance, and consumables; equipment replacement; labor; and other costs. The O&M costs were prepared in collaboration with the Sanitation Districts and are summarized in the *Updated Opinion of Probable Cost for the Nitrification-Denitrification Tertiary MBR Base Advanced Water Treatment Facility* (Stantec 2022). The updated O&M estimates were prepared by escalating the previous estimates to May 2025 dollars.

The conveyance facilities O&M costs include labor, maintenance and repair, and energy costs for the pump stations. The updated O&M estimates were prepared by the conveyance conceptual design consultant, who escalated the previous estimates from June 2022 to May 2025 dollars, as the O&M cost assumptions remained generally unchanged since the previous estimate.

Phase 1 Staging Options

Detailed capital and O&M cost estimates are presented for each of the four staging options for Phase 1—45 MGD, 75 MGD, Hybrid 45/75 MGD, and 115 MGD, as well as for Phase 2—150 MGD full build-out. Metropolitan's capital costs would range from \$2.88 billion for 45 MGD to \$9.84 billion for 150 MGD, with annual O&M costs ranging from \$89 million to \$245 million. Construction completion dates range from 2035 to 2041.

Phase 1 (115 MGD) Cash Flow and Schedule

For Phase 1 (115 MGD), peak annual expenditures of \$1.6 to \$1.7 billion are anticipated during the major construction phases for combined assets, which is estimated between Fiscal Year (FY) 2031/2032 and FY 2033/2034. The cumulative cost is estimated to be \$8.3 billion by 2036 for Phase 1 (115 MGD) and \$9.8 billion by 2041 for Phase 2 (150 MGD)—Metropolitan cost only. The schedule incorporates phased delivery strategies, risk float allowances, and critical dependencies, such as the availability of conveyance service connections, the power infrastructure, and regulatory approvals.

Table ES-1 summarizes the PWSC Program costs under various phasing/staging options in 2025 dollars. The table consolidates capital cost and total program cost by agency, Metropolitan's annual O&M cost, and project completion milestones.

Table ES-1: PWSC Staged Program Cost Summary

Phasing/Staging Option	Metropolitan Capital Cost (\$M)	Sanitation Districts Capital Cost (\$M)	Total Program Cost (\$M)	Metropolitan Annual O&M Cost (\$M)	Planned Completion Year
45 MGD	2,881	697	3,578	89	2035
75 MGD	7,139	962	8,101	125	2036
Hybrid 45/75 MGD	7,455	1,109	8,711	125	2037
115 MGD	8,311	1,085	9,396	167	2036
150 MGD	9,841	1,474	11,315	245	2041

The PMC also conducted a high-level cost comparison of PWSC and the Groundwater Replenishment System, built and operated by the Orange County Water District. The summary of this comparison is summarized in Section 1.5.4 and **Appendix E**.

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Key Acronyms and Abbreviations

AACE	Association for the Advancement of Cost Engineering International
AWPF	Advanced Water Purification Facility
AWT	Advanced Water Treatment
BABAA	Build America/Buy America Act
BIM	Building Information Modeling
CCI-LA	Construction Cost Index for the City of Los Angeles
CM/GC	Construction Manager/General Contractor
DPR	direct potable reuse
FY	Fiscal Year
GWRS	Groundwater Replenishment System
IPR	indirect potable reuse
kWh	kilowatt-hour
LADWP	Los Angeles Department of Water and Power
MBR	Membrane Bioreactor
Metropolitan	Metropolitan Water District of Southern California
MGD	million gallons per day
O&M	operation and maintenance
OCWD	Orange County Water District
PDB	Progress Design Build
PM/CM	project management/construction management
PMC	Program Management Consultant
PMIS	Program Management Information System
PWSC	Pure Water Southern California
R1-R8	Conveyance Reaches 1 through 8
RWA	raw water augmentation
Sanitation Districts	Los Angeles County Sanitation Districts
SCE	Southern California Edison
SGVMWD	San Gabriel Valley Municipal Water District
UV	Ultraviolet
Warren Facility	A. K. Warren Water Resource Facility

1. Introduction

Pure Water Southern California (PWSC) is a proposed partnership between the Metropolitan Water District of Southern California (Metropolitan) and the Los Angeles County Sanitation Districts (Sanitation Districts) to provide a new, high-quality local water source that would be reliable, cost-effective, and climate-change resilient. PWSC would include the Advanced Water Purification Facility (AWPF), owned and operated by Metropolitan, and the Pretreatment and Membrane Bio-Reactors (MBRs) facility, owned and operated by the Sanitation Districts. PWSC would deliver purified water for indirect potable reuse (IPR) and direct potable reuse (DPR) applications.

PWSC program delivery would be developed two phases—Phase 1 (115 million gallons per day [MGD]), and Phase 2, the ultimate buildout to 150 MGD. Both phases, as well as the staging options for Phase 1, are discussed in this document.

1.1 Purpose of this Program Cost Update

The purpose of the 2025 Program Cost Update is to document the basis and provide complementary background information for the PWSC Cost Update, presented to Metropolitan's Board on September 23, 2025. This document defines the delivery schedules tied to cost estimates and cash flow projections that were used for various AWPF and conveyance system staging options. This document conveys and enhances the presentation's information, highlighting the following:

- General cost estimate methodology and approach
- Cost parameters and assumptions that were used to develop the 2025 cost estimates
- Basis for the 2025 construction and O&M costs
- Implementation schedule for each phase/staging option
- Cash flow projections for each phase/staging option
- Appendices with supporting unit cost information and calculations
- Comparison of program costs between PWSC and the Groundwater Replenishment System (GWRS), built and operated by the Orange County Water District (OCWD)

A detailed summary of the PWSC program costs and backup information are provided in the appendices for the AWPF and conveyance system facilities. Cost breakdowns are provided for both Metropolitan and the Sanitation Districts.

This document also provides a comparative analysis of the 2023 and 2025 cost estimates, highlighting the principal variances and the underlying drivers of those changes.

1.2 Program Background

PWSC would include planning, design, and construction of facility improvements; an AWPF at the Sanitation Districts' A.K. Warren Water Resource Facility (Warren Facility) in Carson, California; an approximately 39-mile new conveyance backbone pipeline; multiple pump stations; connections to member agency systems or recharge facilities in three regional groundwater basins; and a 25 MGD satellite treatment facility for DPR via raw water augmentation (RWA). Phase 2 (150 MGD) would provide an additional 35 MGD of DPR via the RWA facility at Weymouth. For the 2025 cost estimate, the backbone pipeline is assumed to be 84 inches in diameter (reduced to 48 inches in diameter between the Santa Fe Pump Station and Canyon Spreading Grounds) and is divided into eight reaches.

The AWPF would include Membrane Bioreactor (MBR) processes operated by the Sanitation Districts and Advanced Water Treatment (AWT) processes operated by Metropolitan. The conveyance facilities would be owned and operated by Metropolitan, with the exceptions of member agency laterals and other infrastructure downstream from the service connections.

Figure 1 shows the following Phase 1 components:

- **Sanitation Districts' Pretreatment and MBR Facility:** Upgrades to the Warren Facility by the Sanitation Districts, including construction of a side-stream centrate treatment system and high-purity oxygen low-efficiency modifications to reduce the nitrogen load going into the AWPf. Construction of the MBR facility by Sanitation Districts.
- **Advanced Water Treatment Facility:** Construction of AWT facility infrastructure by Metropolitan at the Warren Facility (including the product water clearwell and pump station), and a 25 MGD satellite DPR treatment facility at Metropolitan's Weymouth Plant for RWA, using ultraviolet disinfection and chlorine dioxide processes to meet regulatory requirements for less than 10 percent blending (would include ancillary facilities to support AWT operations, including operation, administration, and electrical buildings, a laboratory, a warehouse, parking, EV facilities, outreach facilities, battery storage, tour galleries, a visitor center, street beautification, a demonstration garden, and a workforce training center)
- **Conveyance System:** Construction of a 39-mile conveyance backbone pipeline from the AWPf to the Main San Gabriel Basin, repurposing the existing 30-inch-diameter Azusa pipeline to convey up to 25 MGD from the backbone pipeline east to Metropolitan's Weymouth facility for RWA, as well as four pump stations, and nine service connections
- **Recharge Facilities:** Connections to partner systems or recharge facilities across three regional groundwater basins

Additional facilities to be added for Phase 2 would consist of the following:

- Expansion of pretreatment and treatment facilities at the AWPf with an additional 35 MGD capacity, for a total capacity of 150 MGD
- Construction of a 60 MGD satellite DPR facility at Metropolitan's Weymouth facility for RWA, using ozone and biological activated carbon and ultraviolet disinfection processes to meet regulatory requirements for greater than 10 percent blending
- Construction of a new 54-inch-diameter DPR pipeline to convey 60 MGD from the backbone pipeline east to Metropolitan's Weymouth facility for RWA and one additional pump station (the cost estimate assumes that the Azusa pipeline no longer would be used in Phase 2)

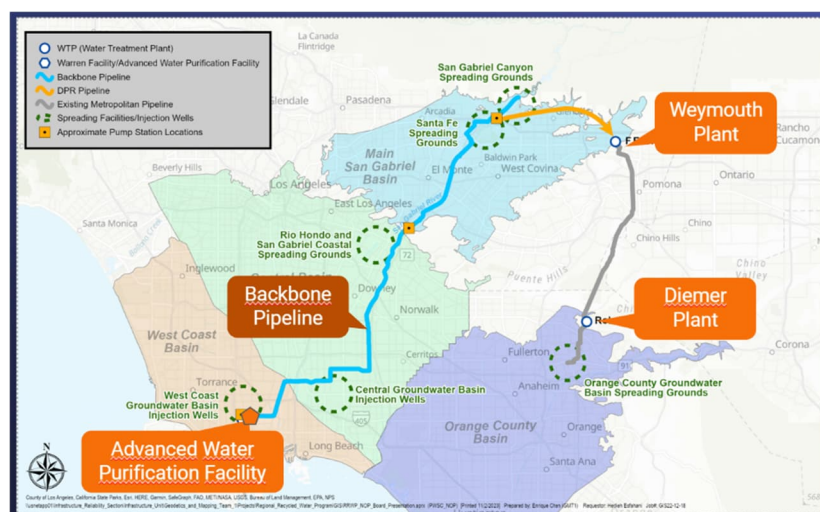


Figure 1: PWSC Facilities

1.3 Methodology/Approach

The 2025 cost estimates were developed using a structured, multi-step approach for accuracy, transparency, and alignment with industry standards (**Table 1**).

Table 1: Methodology and Approach by Asset Type

Program Component	Design Criteria Developed By	Cost Estimate Prepared By	Methodology/Approach
Advanced Water Treatment (AWT)	Stantec (2023)	Stantec	Updated cost estimates using May 2025 cost data, based on refined design criteria. For project scope and design criteria that remained unchanged, an inflation factor of 8.4% was used to escalate cost estimates from December 2023 to May 2025.
Pretreatment/Membrane Bioreactor (MBR)	Stantec/Jacobs (2023)	PMC (AECOM/BC)	Updated cost estimates using May 2025 cost data, based on refined design criteria. For project scope and design criteria that remained unchanged, an inflation factor of 8.4% was used to escalate cost estimates from December 2023 to May 2025.
Direct Potable Reuse (DPR) Satellite Facility (Weymouth)	Stantec (2023)	PMC (AECOM/BC)	Updated cost estimates for DPR treatment infrastructure; applied escalation and allowances for regulatory compliance
Conveyance Facilities	Black & Veatch (2025)	Black & Veatch	A bottom-up construction cost estimate was developed by Black & Veatch for the entire conveyance system, for both phases of the program. An inflation factor of 18.4% was used to escalate previous O&M cost estimates from June 2022 to May 2025, because the O&M assumptions remained generally unchanged.
Recharge and Local Facilities	Metropolitan (2025)	PMC (AECOM/BC) and Metropolitan	The cost estimate was calculated using updated unit rates that were indexed to May 2025 dollars, applied to the projected laterals length.
Real Property, Environmental, and Community Benefits	Metropolitan (2025)	PMC (AECOM/BC) and Metropolitan	Escalated to May 2025

Basis of Estimates

All detailed cost estimates and basis of estimates for the AWT and conveyances system, prepared by conceptual design consultants Stantec and Black & Veatch, respectively, are attached as appendices to this document.

Cost Parameters and Assumptions

Some of the basic assumptions included the percentage allowances to be used for program management (5%) and design project management/construction management (PM/CM) (25%). A program contingency of 30% to 35% was included to cover unknowns.

Additional allowances to meet Build America/Buy America Act (BABAA) requirements, tariff allowances, and community benefit commitments also are included. However, Metropolitan may be able to apply for a BABAA waiver for specialized equipment that primarily is manufactured outside the U.S., including much of the pretreatment/MBRs, ultraviolet, ozone, and other specialty process equipment. If appropriate, this waiver application would be completed by the AWPf progressive design-builds and Conveyance System Construction Manager/General Contractors (CM/GCs), because the waivers would be design-specific and typically would take up to a year or more to be approved. Any cost reductions because of BABAA waiver approval would be reflected in the Guaranteed Maximum Price proposals.

The cost estimates were developed in accordance with the Cost Estimate Classification System, established by the Association for the Advancement of Cost Engineering International (AACE), which served as the guiding framework. **Table 2** Error! Reference source not found. shows the cost estimation classification matrix for process industries.

The classification of the cost estimate update varied, depending on the level of design maturity. Components that would have a greater level of project definition were considered a Class 4 estimate, while components that would have lower levels of project definition were considered a Class 5 estimate. Class 4 estimates would have a level of accuracy of 30% to +50%, while Class 5 estimates would have a level of accuracy of -50% to +100%. The classification levels are as defined by the AACE.

As the PWSC program becomes more defined, contingencies likely would be reduced, and the range of accuracy would narrow. For example, with Reaches 1 and 2 further along in preliminary design, Metropolitan and the project management consultant applied a contingency of 30% to these reaches, while a contingency of 35% was maintained for the remaining reaches, which were evaluated at a conceptual design level only.

Table 2: Cost Estimate Classification Matrix for Process Industries

Estimate Class	Primary Characteristic	Secondary Characteristic		
	Maturity Level of Project Definition Deliverables <i>Expressed as % of complete definition</i>	End Usage <i>Typical purpose of estimate</i>	Methodology <i>Typical estimating method</i>	Expected Accuracy Range <i>Typical variation in low and high ranges at an 80% confidence interval</i>
Class 5	0% to 2%	Concept screening	Capacity factored, parametric models, judgment, or analogy	L: -20% to -50% H: +30% to +100%
Class 4	1% to 15%	Study or feasibility	Equipment factored or parametric models	L: -15% to -30% H: +20% to +50%
Class 3	10% to 40%	Budget authorization or control	Semi-detailed unit costs with assembly level line items	L: -10% to -20% H: +10% to +30%
Class 2	30% to 75%	Control or bid/tender	Detailed unit cost with forced detailed take-off	L: -5% to -15% H: +5% to +20%
Class 1	65% to 100%	Check estimate or bid/tender	Detailed unit cost with detailed take-off	L: -3% to -10% H: +3% to +15%

The estimates incorporated the key elements that are discussed next.

Conceptual Design Basis

Each major program component—AWPF, conveyance system, and recharge facilities—was advanced to a conceptual design level by specialized engineering firms. These design criteria served as the foundation for cost development and were validated by the program management consultant.

Estimates were prepared in accordance with the AACE guidelines, primarily at the Class 4 level (accuracy range of 30% to +50%), with some less-defined scope items at the Class 5 level (accuracy range of 50% to +100%), as shown in **Figure 2**.

Recommended Contingencies (Accuracy Ranges)

2023 Estimates: used **35%** contingency for all cost elements

2025 Class 4 Estimates: uses maturity-specific contingencies

- AWT Maturity Level: **10%-12%**
- AWT Accuracy Range: **30%**
- Conveyance Maturity Level: **5%-10%**
- Conveyance Accuracy Range:
 - **30%** for Reaches 1 & 2
 - **35%** for Remaining Reaches

ESTIMATE CLASS	Primary Characteristic	Secondary Characteristic		
	MATURITY LEVEL OF PROJECT DEFINITION DELIVERABLES Expressed as % of complete definition	END USAGE Typical purpose of estimate	METHODOLOGY Typical estimating method	EXPECTED ACCURACY RANGE Typical variation in low and high ranges at an 80% confidence interval
Class 5	0% to 2%	Concept screening	Capacity factored, parametric models, judgment, or analogy	L: -20% to -50% H: +30% to +100%
Class 4	1% to 15%	Study or feasibility	Equipment factored or parametric models	L: -15% to -30% H: +20% to +50%
Class 3	10% to 40%	Budget authorization or control	Semi-detailed unit costs with assembly level line items	L: -10% to -20% H: +10% to +30%
Class 2	30% to 75%	Control or bid/tender	Detailed unit cost with forced detailed take-off	L: -5% to -15% H: +5% to +20%
Class 1	65% to 100%	Check estimate or bid/tender	Detailed unit cost with detailed take-off	L: -3% to -10% H: +3% to +15%

Table 1 – Cost Estimate Classification Matrix for Process Industries

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Figure 2: Recommended Estimate Contingencies

Allowances and Contingencies

- **Program Management and Engineering:** 5% for program management and 25% for engineering/indirect costs
- **Contingency:** 30% applied to the AWPf and conveyance reaches 1 and 2; 35% for MBR pretreatment and remaining conveyance and recharge facilities
- **Regulatory Compliance:** Additional allowances for BABAA and tariff impacts

Validation and Benchmarking

The cost estimates were reviewed independently by the program management consultant and benchmarked against historical data, vendor quotes, and comparable large-scale water reuse projects. Sensitivity analyses were performed to account for escalation, market volatility, and scope adjustments.

Phase 1 - Staged Delivery Considerations

For staged program implementation (e.g., Hybrid 45/75 MGD), cost modeling included additional allowances for duplicate mobilization, commissioning, and extended overhead, recognizing that staged delivery introduces higher costs and longer delivery schedule compared to single-phase construction.

1.4 Cost Estimates

Both capital and O&M cost estimates were included for the program cost update.

1.4.1 Staged Program Implementation

Table 3 shows a cost summary with staged program implementation. All cost estimates are in May 2025 dollars. Facilities, cash flow projections, estimated capital costs, implementation schedules, and O&M costs for each program stage are provided in separate sections in this document. Detailed capital cost estimates, broken down by agency, are provided in **Appendix A**.

Table 3: PWSC Staged Program Cost Summary

Capacity	Sanitation Districts Share of Cost* (\$Million)	Metropolitan's Share of Costs (\$ Million)	Total * Program Cost (\$Million)	Online Year
45 MGD	697	2,881	3,578	2035
75 MGD	962	7,139	8,101	2036
Hybrid 45/75 MGD	1,109	7,455	8,711	2037
115MGD	1,085	8,311	9,396	2036
150 MGD	1,474	9,841	11,315	2041

Note:

* The Sanitation Districts' property value of the Joint AWPf treatment site and Workforce Training facility site is not included (valued at \$164 million).

1.4.2 Operation and Maintenance Costs

Operation and maintenance (O&M) costs would be a critical component not only for long-term O&M planning and budgeting, but also in determining the life-cycle cost of purified water. These costs were estimated for treatment, conveyance, and recharge facilities and included Metropolitan labor, major equipment repair or replacement, chemicals, energy, and other consumables. Energy costs were estimated based on \$0.15 per kilowatt-hour (kWh). The energy rate was based on the average electricity costs in California (ranging from \$0.05 to \$0.15 per kWh). Furthermore, the project management consultant has used some historical data from other similar programs to validate the rate for the 2025 cost estimates. **Table 4** summarizes the estimated O&M costs, inclusive of contingency, and a detailed breakdown is provided in **Appendix B**.

Table 4: PWSC Annual O&M Costs

	45	75	Hybrid 45/75	115	150
Assets	Costs (\$ M)	Costs (\$ M)	Costs (\$ M)	Costs (\$ M)	Costs (\$ M)
Treatment Facilities *	61	86	86	115	170
Conveyance Facilities	16	22	22	30	42
Recharge Facilities	0	0.4	0.4	1	1
Contingency	12	16	16	22	32
Metropolitan Grand Total	89	125	125	167	245
Sanitation Districts Grand Total	14	20	20	27	40

Note:

*Includes costs for Program Management Information System (PMIS) and Building Information Modeling (BIM).

Treatment Facilities O&M Costs

The O&M costs for AWPf would include power, chemical, maintenance, consumables, equipment replacement, labor, and other costs for the AWT, MBR, and DPR satellite facilities. These costs were prepared in collaboration with the Sanitation Districts and are summarized in the *Updated Opinion of Probable Cost for the Nitrification-Denitrification Tertiary MBR Base Advanced Water Treatment Facility* (Stantec 2022) technical memorandum. The updated O&M estimates were prepared by escalating the previous estimates to May 2025 dollars.

Conveyance Facilities O&M Costs

The conveyance facilities O&M costs would include labor, maintenance and repair, and energy costs primarily for the pump stations. The updated O&M estimates were prepared by the conveyance conceptual design consultant Black & Veatch, by escalating the previous estimates by 18.4% from June 2022 to May 2025 dollars, using the Construction Cost Index for the City of Los Angeles (CCI-LA), because the O&M assumptions remained generally unchanged since the previous 2022 estimate. The details are provided in **Appendix D**.

Recharge Facilities O&M Costs

The recharge facilities O&M costs were estimated based on experience with similar projects in the region.

1.5 Program Cost Escalation

1.5.1 Increase of Phase 1 Program Cost

Figure 3 shows the current and previous Phase 1 PWSC program cost estimates. However, the 2018 estimates were based on a 100 MGD Phase 1 capacity. This 2025 estimate includes the Sanitation Districts' \$1.1 billion Phase 1 (115 MGD) investment in pretreatment and MBR facilities, as well as shared facility costs. The "Other" category in green includes recharge facilities, shared infrastructure with the Sanitation Districts at the AWPf, and program contingency allowances not otherwise captured. **Appendices C and D** provide detailed cost estimates for the AWPf and conveyance system, respectively.

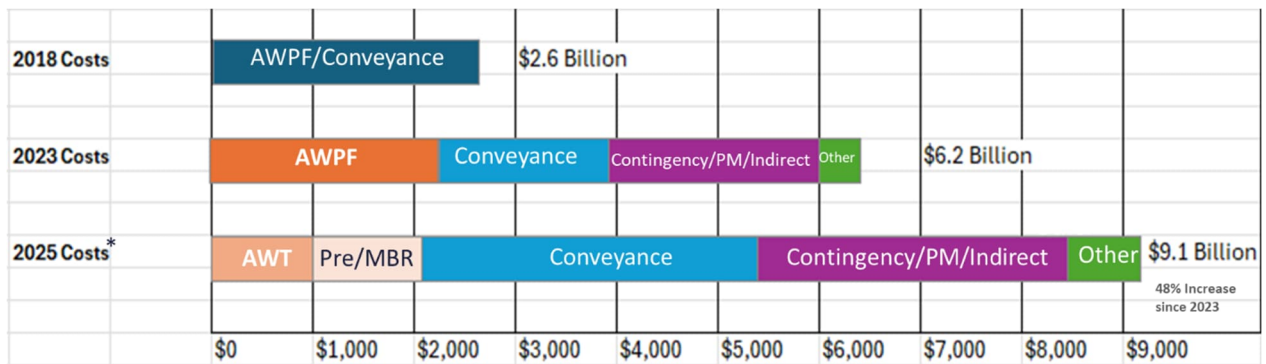


Figure 3: Phase 1 Program Comparison

The Phase 1 program costs have increased by approximately 48% since 2023. Several factors have contributed to the increase in total program costs. Inflation and supply chain disruptions have continued to exert significant pressure on material and labor costs, with regional construction indices showing persistent increases beyond CCI-LA trends. In addition, the program scope has been refined since 2023, incorporating updated design assumptions for major treatment processes, scope refinements, trenchless operations, and market conditions. Compliance with DPR regulations adopted in 2024, BABAA requirements, tariff allowances, and anticipated community benefit commitments have added further to the costs. These refinements, combined with contingency adjustments and phased delivery considerations, have resulted in increases across all major assets cost categories.

1.5.2 Increase of Phase 1 Program Cost—Metropolitan Facilities Only

The updated 2025 cost estimate for the PWSC Phase 1 program reflects an increase from \$4.9 billion to \$8.3 billion (Metropolitan costs only) since 2023. As shown in **Figure 4**, the largest cost increase (from \$1.8 billion to \$3.7 billion) was the cost of the conveyance system, primarily because of the higher cost of steel and trenchless operations, as well as design refinements and adjustments to contractor markups, to be consistent across the program.

The AWT costs increased from \$858 million to \$1.1 billion, attributable mainly to design refinements. Contingency, engineering, and indirect costs rose by \$2 billion, to \$3.1 billion, while other facilities and shared costs doubled to \$0.4 billion.

The 2025 estimates also incorporated other program facilities, such as the Workforce Training Center (\$30 million), to be developed in partnership with the City of Carson, Sanitation Districts, and Metropolitan. The cost of this facility was assumed to be shared equally (50/50) with the Sanitation Districts. These adjustments reflect a more comprehensive understanding of anticipated project delivery needs and community commitments, as well as inflationary and market-driven cost escalations.

These changes reflect inflationary pressures, scope expansion, and regulatory compliance allowances, resulting in an overall program cost increase of approximately 70%.

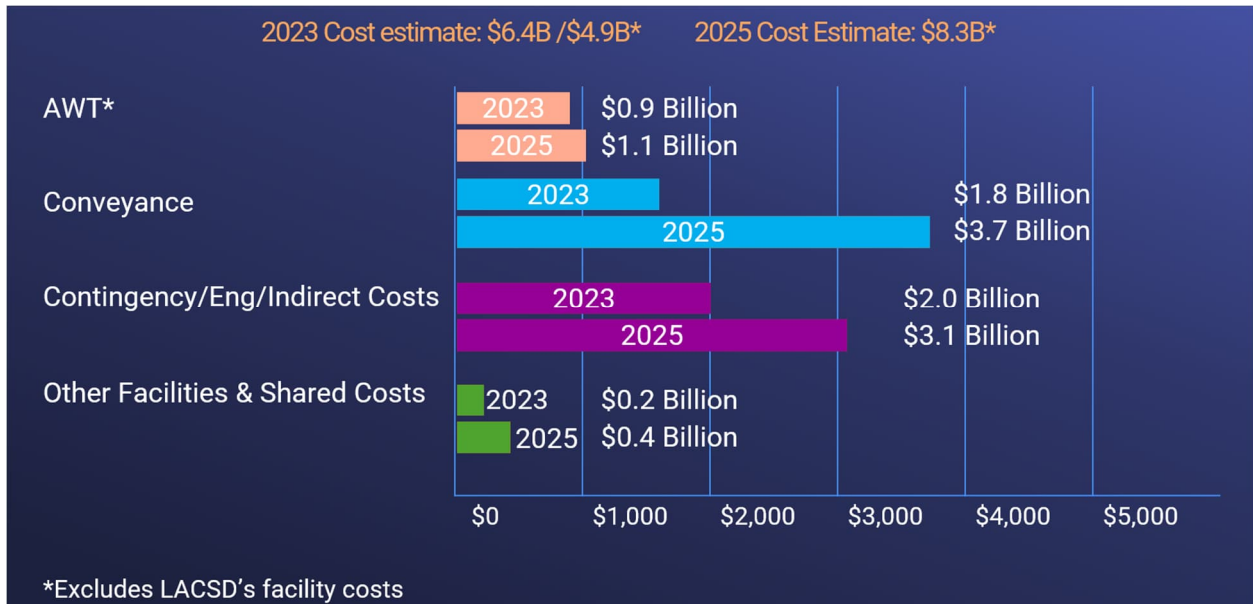


Figure 4: Phase 1 Program Comparison, Metropolitan Facilities Only

1.5.3 Key Drivers for Program Cost Escalation

In summary, several factors have contributed to the escalation in program costs, including the following:

- Economic Conditions:** Inflation and supply chain disruptions have continued to impact the program since 2023. The CCI-LA was 10% in Fiscal Year (FY) 2022/2023, followed by 4.2% in both FY 2023/2024 and FY 2024/2025, indicating persistent inflationary pressure.
- Advanced Water Purification Facility Scope:** The AWPf design has been refined to meet more stringent water quality compliance requirements, resulting in higher costs.
- Conveyance System Design Updates:** Costs increased primarily because of the higher cost of steel and trenchless operations, as well as design refinements and adjustments to contractor markups, to be consistent across the program.
- Regulatory Compliance:** Updated cost allowances were added to meet BABAA guidelines and account for equipment and supply tariffs, following the receipt of the Federal Design Grant.

1.5.3.1 Key Drivers for AWT Cost Increase

Materials. This reflects several key infrastructure enhancements. These include the addition of an equalization tank and pump station to support reverse osmosis feed, as well as a larger finished water clearwell, surge tanks, and a pump station designed to accommodate full-capacity DPR, a work force training center, and

updated power substation estimates. Material cost updates also were applied to pipelines, lime, steel rebar, and various piping components, to reflect current market conditions.

Design criteria and assumptions. Several adjustments were made to align with increased construction demands. These included additional allocations for project management, engineering, and indirect costs. Additional site restoration efforts were identified, along with revised requirements for the power system. Updates also were made to the chemical system and design of the ancillary facilities, for operational efficiency and regulatory compliance.

Allowances and contingency. This included financial adjustments to account for future uncertainties and regulatory considerations. An escalation rate of 8.4% was applied to reflect anticipated cost increases over time. Full allowances (100%) were incorporated to address the BABAA and tariff-related impacts. Furthermore, a contingency of 3.8% was added to mitigate risks associated with design and construction variability.

1.5.3.2 Key Drivers for Conveyance Cost Increase

Materials and Market Conditions. This reflects increased costs primarily associated with steel pipe and trenchless material and installation. These adjustments are based on updated market rates and procurement expectations.

Scope Refinements. Several significant changes have been incorporated. These included the need for additional trenchless construction; deeper pipeline profiles and shafts, to avoid utility congestion and navigate complex subsurface conditions; a change in pipeline lining and coating to address anticipated AWPf product water quality, corrosive ground conditions, and separation requirements; concrete encasements required within Southern California Edison easements to meet utility protection standards; additional pump station appurtenances; and a power substation to support operational demands at the Whittier Narrows Pump Station.

Contractor Markups. This included markups on trenchless work for hybrid reaches, and indirect construction cost markups to be consistent across the program.

1.5.4 Program Cost Comparison with the GWRS

An inquiry was made to compare the program capital and O&M costs of the PWSC and OCWD's GWRS. A detailed cost comparison is provided in **Appendix E** and is summarized as follows:

- Capital costs for the two programs were not directly comparable because of the difference in time and capacity at which GWRS was implemented. However, a high-level comparison of the GWRS 70 MGD facility (in 2025 dollars) and the PWSC 75 MGD capacity scenario (for AWT facilities only) indicated that the cost difference would fall within the expected range for a Class 5 estimate (i.e., expected accuracy range between 50% and +100%). The PWSC's projected capital cost is approximately 34% higher than that of GWRS on a \$/MGD basis. This is primarily due to early design maturity necessitating higher construction contingency costs, and the inclusion of allowances for a program management consultant (given the program size and complexity), BABAA requirements, and tariffs.
- O&M costs for the GWRS 70 MGD facility (in 2025 dollars) and the PWSC 75 MGD capacity scenario (for AWT facilities only) are within a reasonable cost range. The PWSC's projected O&M cost is approximately 78% higher than that of GWRS on an annual \$/MGD basis. This is primarily because of the early design maturity necessitating higher O&M contingency costs, as well as higher projected plant maintenance costs related to the additional facilities needed for PWSC in comparison to GWRS (e.g., process buildings, ancillary facilities, public outreach facilities, workforce training center).

2. Construction Cost Estimate

This section presents the major cost components of the cost estimate, key assumptions, exclusions, and a cost breakdown.

2.1 Major Cost Component

This section discusses the construction costs for the AWPf, conveyance and recharge facilities, as well as related program costs, when taken together form the major cost component of the construction cost estimate.

2.1.1 Advanced Water Purification Facility

Figure 5 shows the Pretreatment facility (left) and the AWTF (right).

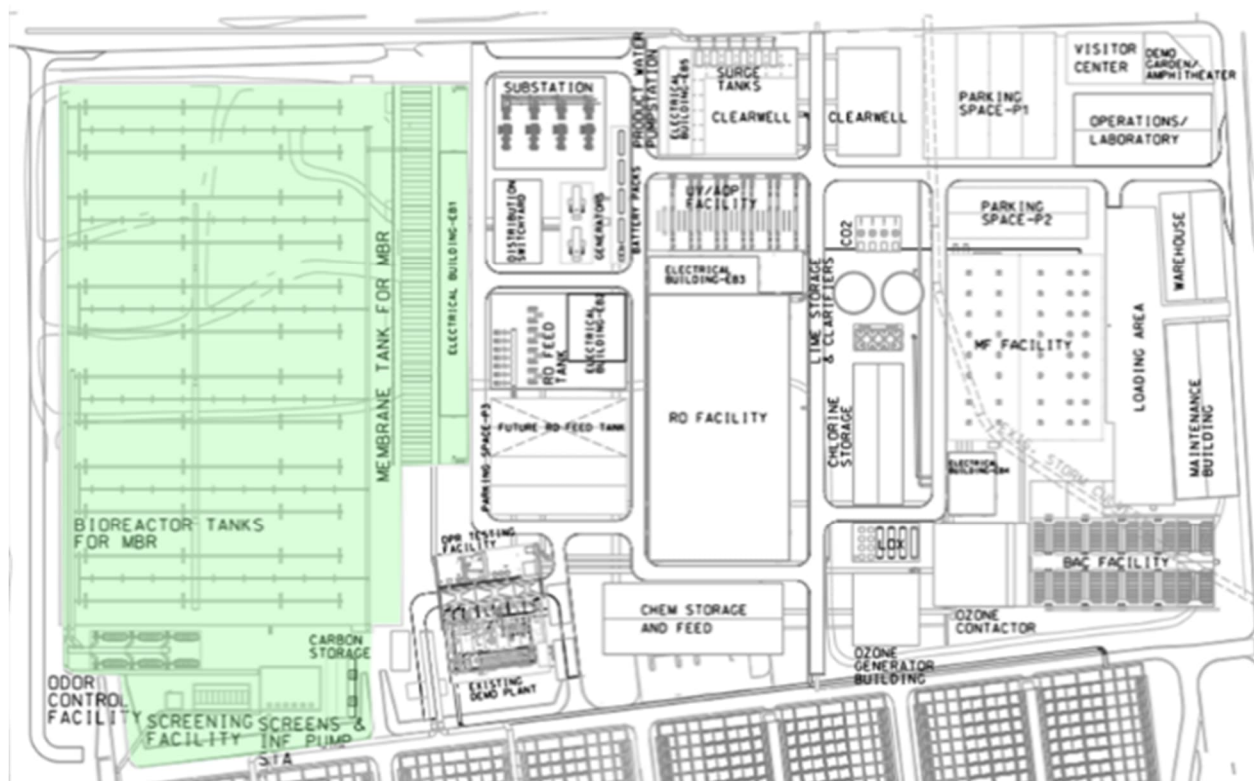


Figure 5: Pretreatment Facility and AWTF

The proposed AWPf would include the following major cost components:

- Site Preparation
- Process Equipment
- Chemical Feed Systems
- Power/Electrical Facilities
- SCE Substation
- Ancillary Facilities
- Outreach Facilities
- Workforce Training Center
- DPR Facilities

2.1.2 Conveyance and Recharge Facilities

The conveyance facilities would include the following major cost components:

- Pipelines (backbone, DPR)
- Service Connections and Laterals
- Pump Stations
- SCE Substation
- Azusa Pipeline Rehabilitation
- Property Easements and Acquisitions

The recharge facilities would include the following major cost components:

- Spreading Facility Improvements
- Well Relocations and Groundwater Monitoring
- Property Acquisitions

2.1.3 Other Program Costs

Other program costs would include the following major cost components:

- **Environmental Mitigation:** environmental impacts associated with the program and mitigation measures that would be implemented to offset those impacts (e.g., purchase of off-site mitigation credits for habitat impacts or property acquisition, habitat creation, mass installation of trees, striping for bike lanes, community and/or native gardens, potential curation facilities, and plaques, monuments or other markers).
- **Community Benefits Program:** as presented to Metropolitan's Board in October 2025, Metropolitan is exploring the development of a voluntary community benefits program for Pure Water, as a best practice for large infrastructure projects that may have residual impacts on underserved and disadvantaged communities located near project facilities. The purpose would be to complement required environmental mitigation efforts and help address impacts to the communities most affected by the program through voluntary, community-driven actions. The details of the program are not yet defined but are anticipated to include potential direct actions through Metropolitan-led projects and the creation of a community benefits fund, with oversight from community advisory groups to ensure funding aligns with local priorities and needs. An estimated allowance has been included in the program cost estimate for these potential benefits, which will be refined when more information becomes available regarding the community benefits program.
- **BABAA and tariff allowances:** Additional costs were factored in for tariffs and BABAA and regulatory compliance requirements under federal, State, and local guidelines. However, Metropolitan may be able to apply for a BABAA waiver for specialized equipment primarily manufactured outside the United States, including much of the Pretreatment/MBR, Ultraviolet (UV), Ozone, and other specialty process equipment. If appropriate, this waiver application would be completed by the AWPf PDBs and Conveyance System CM/GCs, because the waivers would be design-specific and typically would take up to a year or more to be approved. Any cost reductions because of BABAA waiver approval would be reflected in the Guaranteed Maximum Price proposals
- **Program management/engineering:** 25 percent for engineering, construction management, and indirect costs; and 5 percent for program management [a typical range is 5 to 15 percent].
- **Contingencies:** a 30% contingency was used for AWT and Conveyance Reaches 1 and 2 (R1 and R2) and a 35% contingency was used for the Pretreatment/MBR, Conveyance Reaches 3–8 (R3–R8), and Recharge Facilities.
- **AWPF Permitting:** estimated at 1% of the total AWPf construction costs, to cover AWT and MBR permitting costs (e.g., Title 22, local permits, and on-site permits)

2.2 Key Assumptions

The key assumptions that were used to develop the 2025 cost estimates were as follows:

- All costs are in May 2025 dollars.
- 5% program management allowance (typical range of 5% to 15%) was assumed.
- 25% allowance for engineering/program management/construction management support and indirect costs was assumed.
- Phase 1, 115 MGD was used as the baseline cost and schedule.
- The applied escalation CCI-LA was as follows:
 - 18.4% escalation (June 2022 to May 2025) for conveyance O&M costs only
 - 8.4% escalation (December 2023 to May 2025) for AWPf capital and O&M costs
- The AWT facility design was assumed to have a maturity level of approximately 10% to 12%, corresponding to a Class 4 cost estimate, in accordance with AACE guidelines.
- The conveyance system design was assumed to have a maturity level of approximately 5% to 10%, corresponding to a Class 4 cost estimate, in accordance with AACE guidelines.
- A 30% contingency was applied to AWT and conveyance reaches 1 and 2 construction costs.
- A 35% contingency was applied to MBR (Sanitation Districts pretreatment facilities), conveyance reaches 3 to 8, and recharge/local facilities.
- A 3.5% non-allocatable tariff allowance was applied for the AWPf (a 25% value of AWT was used as the basis for 3.5%, equating to an approximately 5% tariff on permanent materials and process equipment at AWT and MBR facilities).
- A 3% non-allocatable tariff allowance was applied for conveyance and recharge facilities (a 25% value for conveyance was used as the basis for 3%).
- A 1% BABAA allowance was applied to the estimated construction cost.

2.3 Exclusions

The following exclusions were assumed for the 2025 cost update:

- Escalation to mid-point of construction
- Upsizing of the backbone pipeline or pump station expansions to accommodate water from other programs
- Potential grants and contribution revenues.

2.4 Potential Program Stages

With a program of this magnitude, consideration of smaller initial program stages is warranted to minimize implementation and financial risks. Staged implementation of the program would allow Metropolitan to build stages that match water supply needs and would avoid over-building. This also could reduce the initial resource needs, provide a stronger revenue generation base, and potentially reduce Metropolitan's risk exposure. This section summarizes the potential staging options and establishes the facility requirements and associated implementation schedule, costs, and cashflow projection for each option.

2.4.1 45 MGD Program Facilities

The 45 MGD program facilities are shown in **Figure 6**.

Planned Completion Year: 2035

Facilities Included:

- AWPf
- Conveyance infrastructure: reaches 1 and 2A (approximately 10 miles)
- Three service connections
- No backbone pump stations

Delivery Locations:

- Los Angeles Department of Water and Power (LADWP)
- West Basin Municipal Water District
- Long Beach Utilities

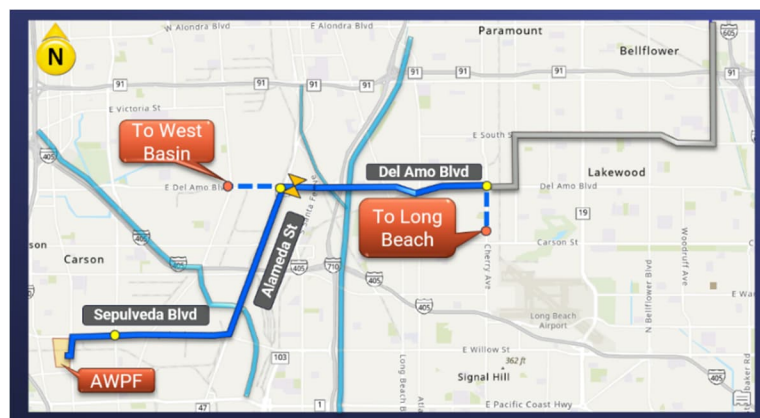
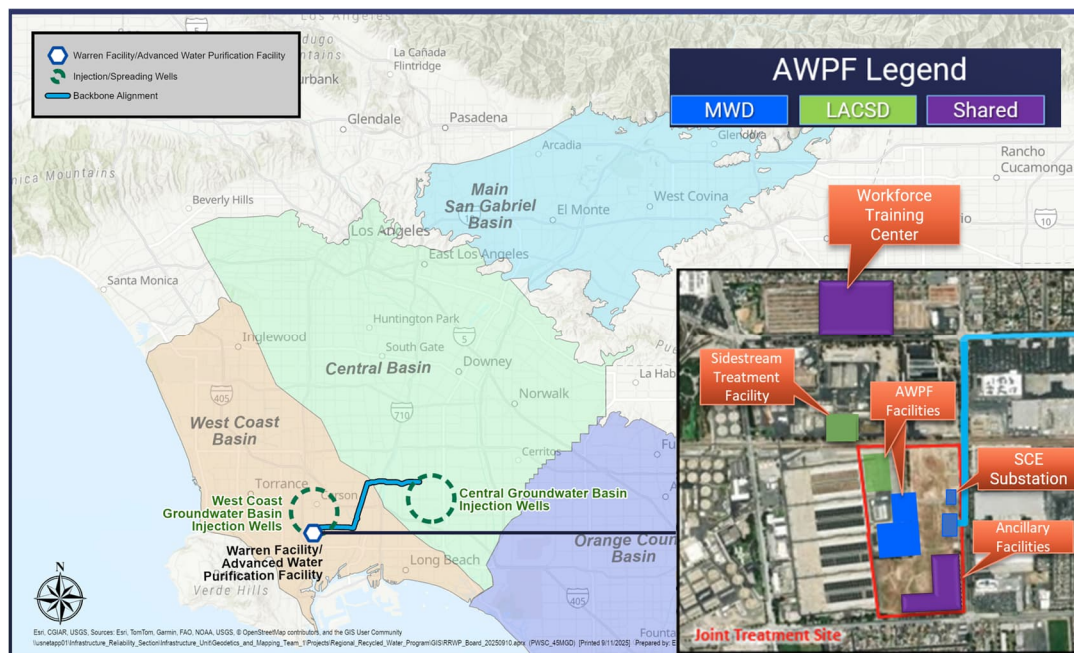


Figure 6: 45 MGD Program Facilities

2.4.1.1 Program Capital Costs—45 MGD

Table 5 shows a breakdown of the estimated capital cost for the 45 MGD program facilities in May 2025 dollars.

Table 5: 45 MGD Program Facility Costs

Assets	Cost (\$M)
Advanced Water Treatment (AWT): 45 MGD, Site Preparation, Process Facilities, Ancillary Facilities, Workforce Training Center, and Substation	654
Conveyance Facilities: Backbone Pipeline (Reaches 1 through 2A)	1,118
Recharge Facilities Improvements (groundwater monitoring)	1
Program Management (PM), Engineering and Indirect Costs: PM (5%), Engineering and Indirect Cost Allowance (25%)	532
Program Contingency: AWT (30%), Conveyance (30% Reach 1 & Reach 2; Remaining 35%) and Local/Recharge Facilities (35%)	486
Other Allowances: BABAA (1%), Non-Allocatable Tariff Allowance (3.5% for AWT and 3% for Conveyance and Recharge)	34
Other Shared Program Costs: Environmental Mitigation Measures, Community Benefits, and AWPf Permits	56
Metropolitan Grand Total	2,881
Sanitation Districts Grand Total	697
PWSC Grand Total	3,579

Note:

* Property value of Sanitation Districts' joint treatment site and Workforce Training Facility site (valued at \$164M) is not included.

2.4.1.2 Cashflow—45 MGD

Figure 7 shows the cash flow projections for the 45 MGD program facility. The cash flow was developed based on the assumption that the Requests for Qualifications for the AWT PBD and Reaches 1 and 2 CM/GCs would be released in April 2026.

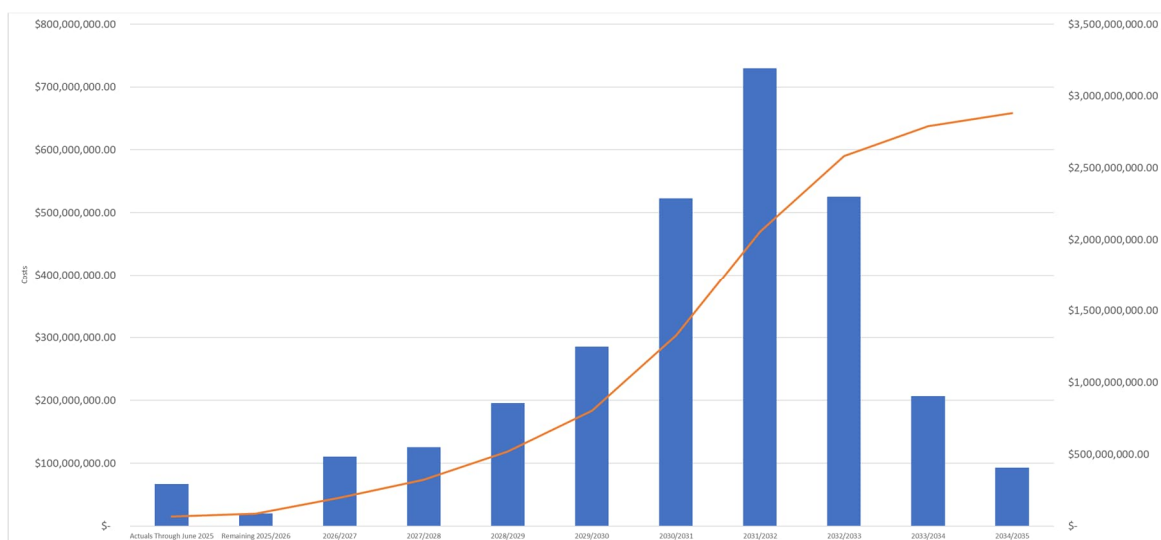


Figure 7: Cash Flow Projections—45 MGD

2.4.1.3 Schedule—45 MGD

Figure 8 shows the implementation schedule and key milestones for the 45 MGD staging option, which is targeted for completion by 2035.

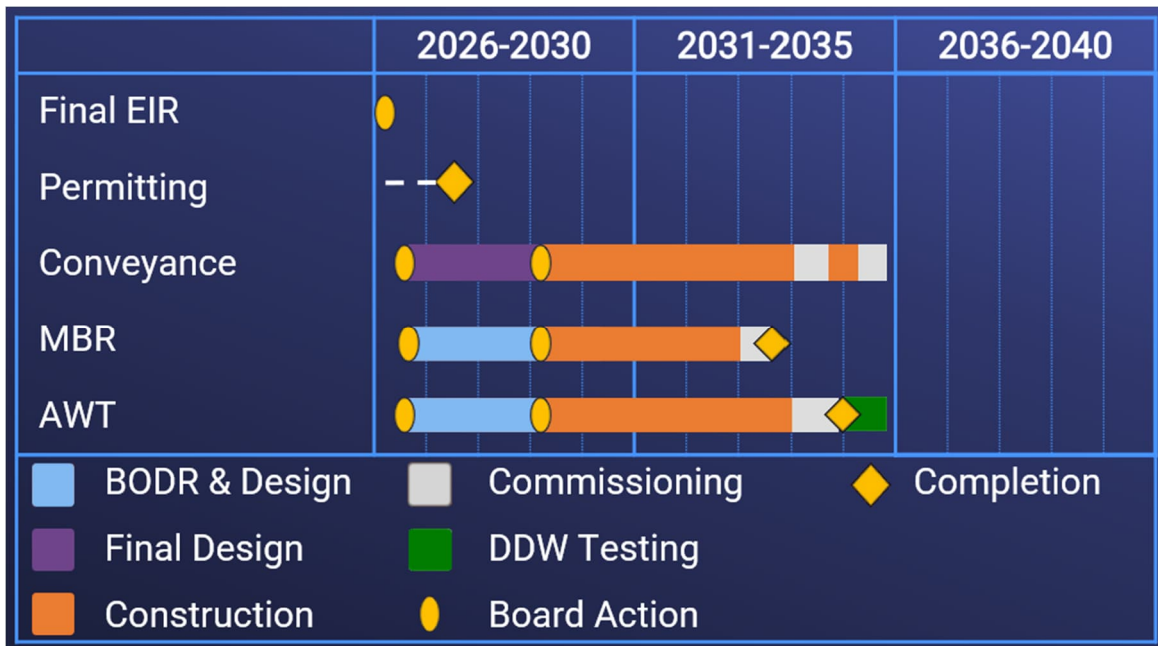


Figure 8: Implementation Schedule—45 MGD

2.4.1.4 O&M Costs—45 MGD

Table 6 shows the estimated annual O&M cost breakdown for the 45 MGD program facility in May 2025 dollars.

Table 6: Annual O&M Cost Breakdown, 45 MGD

Assets	Costs (\$ M)
Treatment Facilities*	61
Conveyance Facilities	16
Recharge Facilities	0
Contingency	12
Metropolitan Grand Total	89
Sanitation Districts Grand Total	14

Note:

*Includes costs for the Program Management Information System (PMIS) and Building Information Modeling (BIM).

2.4.2 75 MGD Program Facilities

Figure 9 shows the 75 MGD program facilities.

Planned Completion Year: 2036

Facilities Included:

- AWP
- Backbone conveyance pipeline: reaches 1 through 8A (approximately 37 miles)
- Eight service connections
- One backbone pump station

Delivery Locations:

- LADWP
- West Basin Municipal Water District
- Long Beach Utilities
- Central Basin Municipal Water District
- Upper San Gabriel Valley Municipal Water District
- Three Valleys Municipal Water District



Figure 9: 75 MGD Program Facilities

2.4.2.1 Program Capital Costs—75 MGD

Table 7 summarizes the estimated capital costs for the 75 MGD program facilities in May 2025 dollars. Costs are categorized by major program components, including AWT, conveyance infrastructure, recharge facilities, program management and indirect costs, contingency allowances, regulatory compliance (BABAA and tariff allowances), and shared program costs. Table 7 also shows the Metropolitan and Sanitation Districts cost shares, as well as the total program cost for this staging option.

Table 7: 75 MGD Program Facility Costs

Assets	Cost (\$M)
Advanced Water Treatment (AWT): 75 MGD, Site Preparation Process Facilities, Ancillary Facilities, Workforce Training Center, and Substation	826
Conveyance Facilities: Backbone Pipeline (Reaches 1 through 8a), Whittier Narrows Pump Station	3,373
Recharge Facilities (purchase, spreading facilities improvements, and groundwater monitoring)	101
Program Management, Engineering and Indirect Costs: PM (5%), Engineering and Indirect Cost Allowance (25%)	1,290
Program Contingency: AWT (30%), Conveyance (30% R1 and R2; Remaining 35%) and Local/Recharge Facilities (35%)	1,413
Other Allowances: BABAA (1%), Non-Allocatable Tariff Allowance (3.5% for AWT and 3% for Conveyance and Recharge)	78
Other Shared Program Costs: Environmental Mitigation Measures, Community Benefits, and AWPf Permits	58
Metropolitan Grand Total	7,139
Sanitation Districts Grand Total	962
PWSC Grand Total	8,101

Notes:

* Property value of Sanitation Districts' joint treatment site and Workforce Training Facility site (valued at \$164M) is not included.

2.4.2.2 Cashflow—75 MGD

Figure 10 shows the cash flow projections for the 75 MGD program facility.

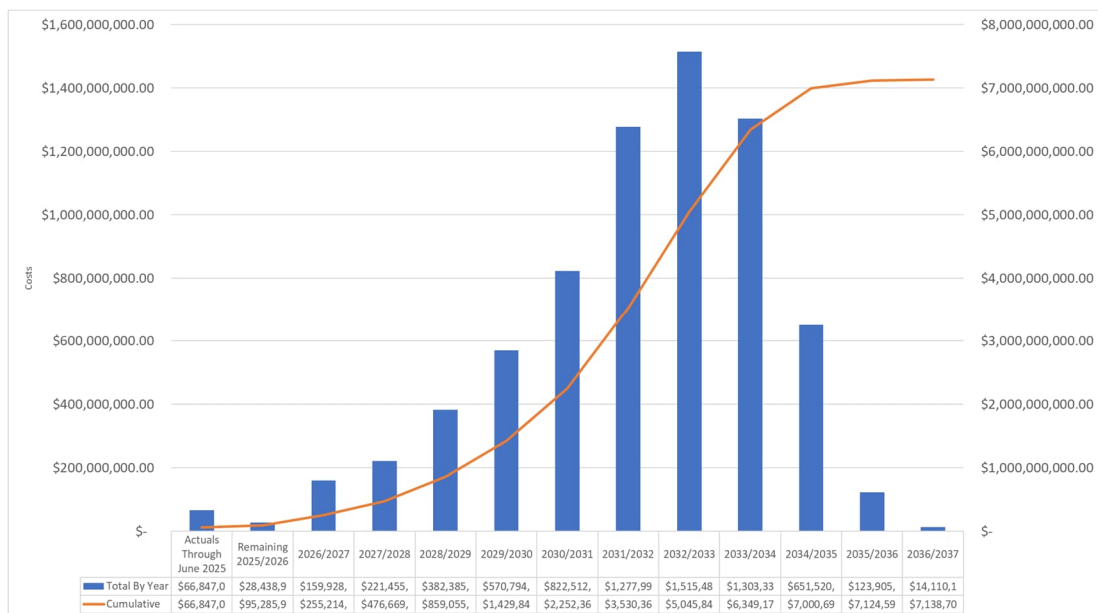


Figure 10: Cash Flow Projections—75 MGD

2.4.2.3 Schedule—75 MGD

Figure 11 shows the key milestones for the 75 MGD program facility, reflecting a staged approach to design and construction and targeting completion by 2036.

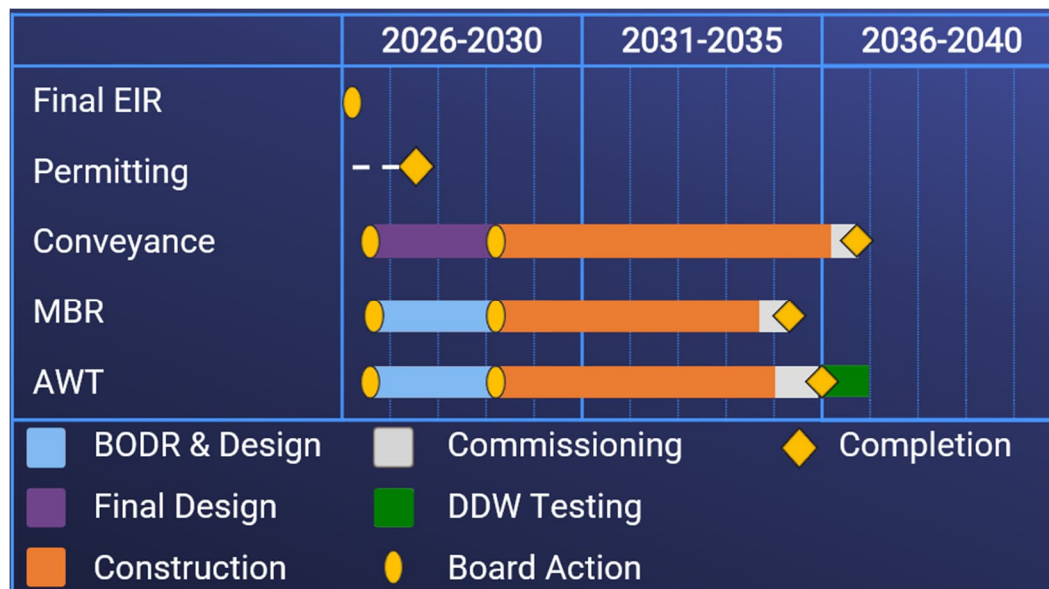


Figure 11: Implementation Schedule—75 MGD

2.4.2.4 O&M Costs—75 MGD

Table 8 shows the estimated annual O&M cost breakdown for the 75 MGD program facility in May 2025 dollars.

Table 8: Annual O&M Cost Breakdown, 75 MGD

Assets	Costs (\$ M)
Treatment Facilities*	86
Conveyance Facilities	22
Recharge Facilities	0.4
Contingency	16
Metropolitan Grand Total	125
Sanitation Districts Grand Total	20

Note:

*Includes costs for the Program Management Information System (PMIS) and Building Information Modeling (BIM).

2.4.3 Hybrid 45/75 MGD Program Facilities

Under this hybrid staging option, the 75 MGD program facility would be built in two steps. Step 1 would involve constructing and commissioning the initial 45 MGD capacity, which would become operational first to provide early water deliveries and meet immediate regional needs. Step 2 then would build out the remaining infrastructure to expand the program delivery capacity to 75 MGD, including additional pipeline reaches, service connections, and one backbone pump station. This approach would allow for early benefits while continuing construction toward full capacity.

Planned Completion Year: 2037

Facilities Included:

- AWPf
- Backbone conveyance pipeline: reaches 1 through 8A (approximately 37 miles)
- Eight service connections
- One backbone pump station

Delivery Locations:

- LADWP
- West Basin Municipal Water District
- Long Beach Utilities
- Central Basin Municipal Water District
- Upper San Gabriel Valley Municipal Water District
- Three Valleys Municipal Water District

Delivery Approach

The 45/75 MGD staging option would be delivered in two steps:

- **Step 1: 45 MGD Commissioning**
Initial construction would focus on the AWPf and approximately 10 miles of backbone pipeline (reaches 1 and 2A), along with three service connections. This would enable early delivery of 45 MGD to Los Angeles, West Basin, and Long Beach, providing immediate regional water supply benefits while full build-out would continue.
- **Step 2: Expansion to 75 MGD**
Following commissioning of the 45 MGD segment, construction would proceed to complete the remaining backbone pipeline reaches to the Main San Gabriel Basin (approximately 37 miles total), add five additional service connections, and construct one backbone pump station. This expansion would increase capacity to 75 MGD and extend deliveries to the Upper San Gabriel Valley and Three Valleys Municipal Water Districts.

This approach would allow Metropolitan to accelerate water deliveries, reduce initial financial exposure, and optimize construction sequencing while maintaining flexibility for future program adjustments.

Although this hybrid approach would offer early water delivery and operational flexibility, it would introduce additional costs compared to constructing the full 75 MGD capacity in a single, continuous phase. The stop-and-restart nature of construction between Step 1 (45 MGD) and Step 2 (expansion to 75 MGD) would result in:

- Duplicate mobilization and demobilization costs for contractors and equipment
- Reduced productivity from re-establishing work sites and construction sequence
- Additional commissioning and testing expenses for two separate operational start-ups
- Extended overhead and indirect costs associated with prolonged project management and site supervision

These factors collectively would make the hybrid 45/75 MGD option more expensive than the single-stage 75 MGD implementation, despite its benefits in accelerating initial water deliveries.

2.4.3.1 Program Capital Costs—Hybrid 45/75 MGD

Table 9 summarizes the estimated capital costs for the Hybrid 45/75 MGD program facilities in May 2025 dollars. The costs are categorized by major program components, including AWT, conveyance infrastructure, recharge facilities, program management and indirect costs, contingency allowances, regulatory compliance (BABAA and tariff allowances), and shared program costs. Table 9 also shows the Metropolitan and Sanitation Districts cost shares, as well as the total program cost for this option.

Table 9: Hybrid 45/75 MGD Program Facility Costs

Assets	Cost (\$M)
AWT/Conveyance/Recharge Facilities 75 MGD Baseline Total Costs	7,139
AWT 45/75 MGD Phasing Additional Costs	
• 45 to 75 MGD Equipment Escalation	123
• 45 MGD Progressive Design-Build (PDB) Mobilization/Demobilization	26
• 45/75 Double Commissioning	42
• 45 to 75 MGD PDB Negative Productivity, Added Safety Needs, and Additional General Site/Construction Conditions	126
Metropolitan Additional Phasing Costs Total:	316
Metropolitan Grand Total	7,455
Sanitation Districts Grand Total	1,109
PWSC Grand Total	8,711

Notes:

* Property value of the Sanitation Districts' Joint AWPf treatment site and Workforce Training Facility site (valued at \$164M) is not included.

2.4.3.2 Cashflow—Hybrid 45/75 MGD

Figure 12 shows the cash flow projections for the 45/75 MGD option.

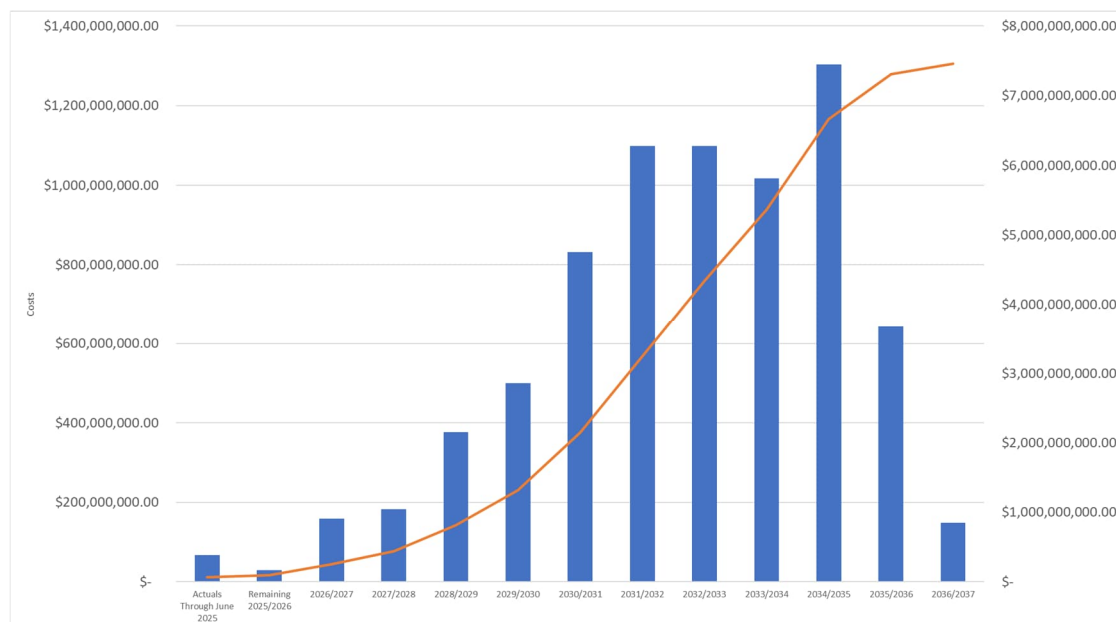


Figure 12: Cash Flow Projections—Hybrid 45/75 MGD

2.4.3.3 Schedule—Hybrid 45/75 MGD

Figure 13 shows the implementation schedule and key milestones for the Hybrid 45/75 MGD program facility, which would adopt a staged delivery approach to accelerate early water deliveries while completing full build-out by 2037.

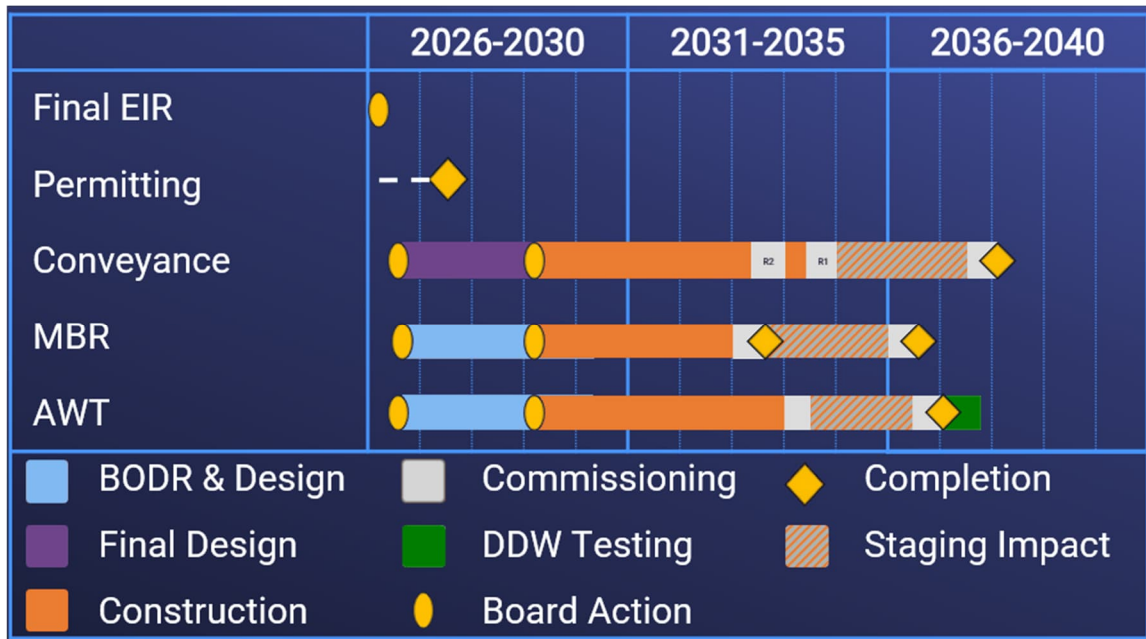


Figure 13: Implementation Schedule—Hybrid 45/75 MGD

2.4.3.4 O&M Costs—Hybrid 45/75 MGD

Table 10 shows the estimated annual O&M cost breakdown for the Hybrid 45/75 MGD program facility in May 2025 dollars.

Table 10: Annual O&M Cost Breakdown, Hybrid 45/75 MGD

Assets	Costs (\$ M)
Treatment Facilities*	86
Conveyance Facilities	22
Recharge Facilities	0.4
Contingency	16
Metropolitan Grand Total	125
Sanitation Districts Grand Total	20

Notes:

*Includes costs for the Program Management Information System (PMIS) and Building Information Modeling (BIM).

2.4.4 115 MGD Program Facilities

Figure 14 shows the 115 MGD program facilities.

Program Facilities: 90 MGD IPR + 25 MGD DPR

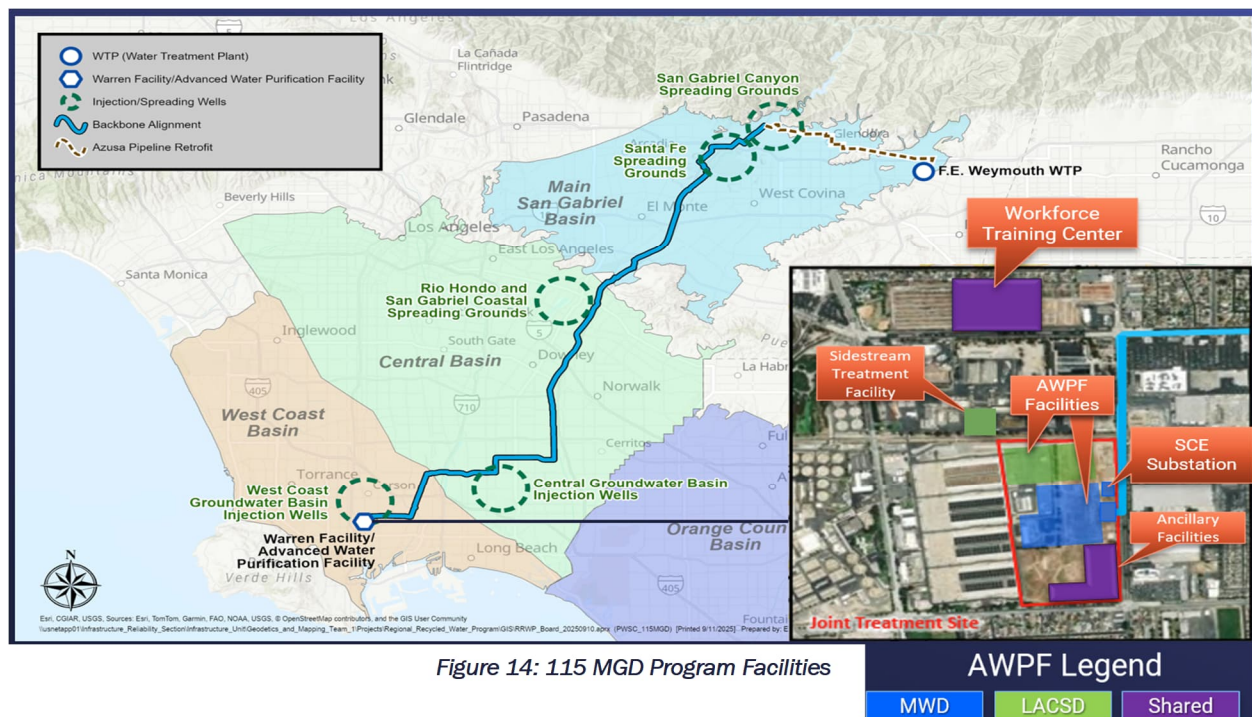
Planned Completion Year: 2036

Facilities Included:

- AWPf
- Backbone conveyance pipeline: reaches 1 through 8B (approximately 39 miles)
- Nine service connections
- Two backbone pump stations
- Azusa pipeline with two pump stations
- Satellite DPR facility at Weymouth

Delivery Locations:

- LADWP
- West Basin Municipal Water District
- Long Beach Utilities
- Central Basin Municipal Water District
- Upper San Gabriel Valley Municipal Water District
- Three Valleys Municipal Water District
- San Gabriel Valley Municipal Water District (SGVMWD)
- Weymouth Water Treatment Plant



2.4.4.1 Program Capital Costs—115 MGD

Table 11 summarizes the estimated capital costs for Phase 1 program facilities, expressed in May 2025 dollars. The costs are categorized by major program components, including AWT, conveyance infrastructure, recharge facilities, program management and indirect costs, contingency allowances, regulatory compliance (BABAA and tariff allowances), and shared program costs.

Table 11 also shows the Metropolitan and Sanitation Districts cost shares, as well as the total program cost for the Phase 1 program.

Table 11: Phase 1 Program Facility Costs

Assets	Cost (\$M)
Advanced Water Treatment (AWT): 115 MGD, Site Preparation, Process Facilities, Ancillary Facilities, Workforce Training Center, Power Station, and Direct Potable Reuse (DPR) Satellite Facilities at Weymouth	1,098
Conveyance Facilities: Backbone Pipeline (Reaches 1 through 8b), Whittier Narrows and Santa Fe Pump Stations, Azusa Pipeline, and Two Pump Stations (for Phase 1 DPR)	3,419
Recharge Facilities (purchase, spreading facilities improvements, and groundwater monitoring)	494
Program Management, Engineering and Indirect Costs: PM (5%), Engineering and Indirect Cost Allowance (25%)	1,503
Program Contingency: AWT (30%), Conveyance (30% R1 & R2; Remaining 35%) and Local/Recharge Facilities (35%)	1,648
Other Allowances: BABAA (1%), Non-Allocatable Tariff Allowance (3.5% for AWT and 3% for Conveyance and Recharge)	91
Other Shared Program Costs: Environmental Mitigation Measures, Community Benefits, and AWPf Permits	58
Metropolitan Grand Total	8,311
Sanitation Districts Grand Total	1,085
PWSC Phase 1 Grand Total	9,396

Note:

* Property value of Sanitation Districts' joint treatment site and Workforce Training Facility site (valued at \$164M) is not included.

2.4.4.2 Cashflow—115 MGD

Figure 15 shows the cash flow projections for the Phase 1 program facilities.

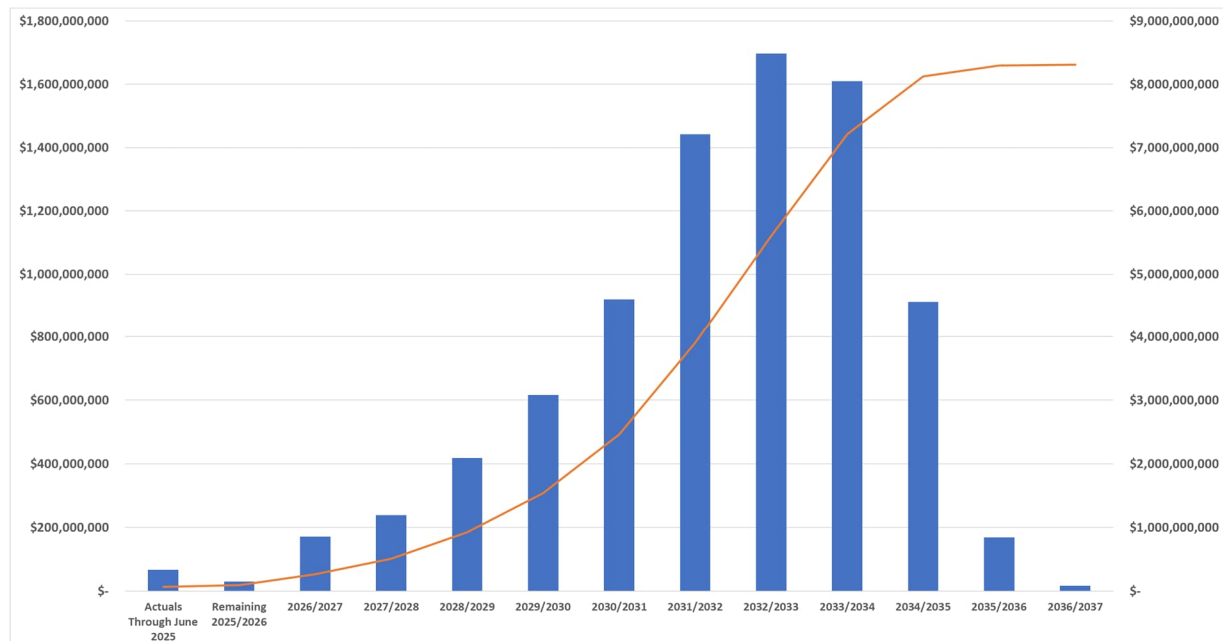


*Figure 15: Cash Flow Projections—115 MGD***2.4.4.3 Schedule—115 MGD**

Figure 16 shows the major milestones and sequencing for the Phase 1 program (115 MGD), which would culminate in full operational capacity by November 2036.

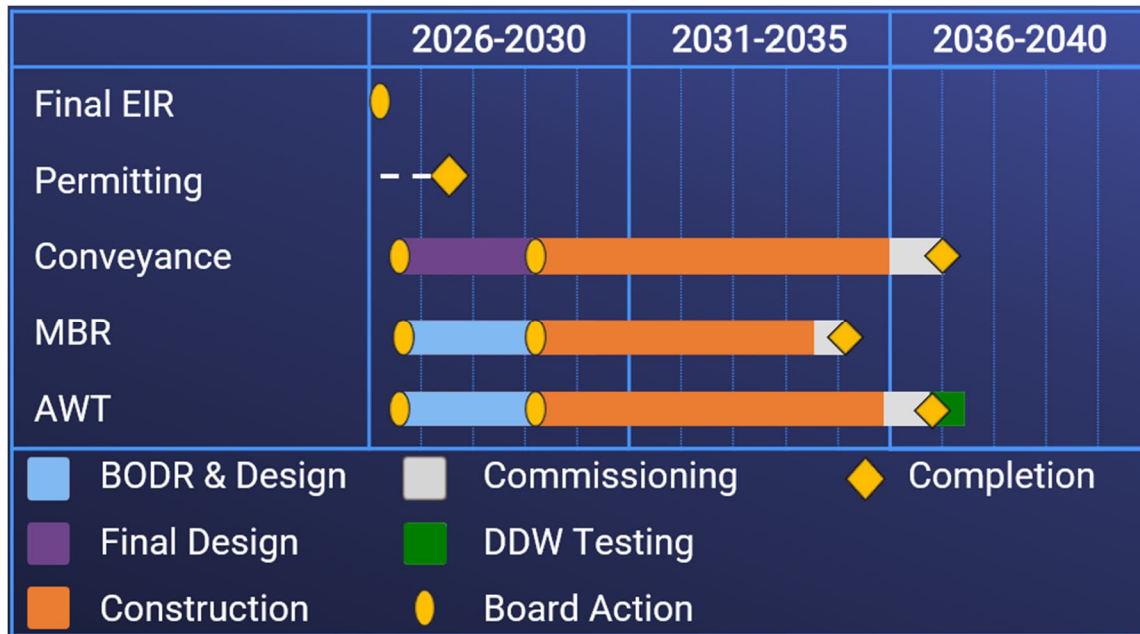
*Figure 16: Implementation Schedule—115 MGD***2.4.4.4 O&M Costs—115 MGD**

Table 12 shows the estimated annual O&M cost breakdown for the Phase 1 program facilities in May 2025 dollars.

Table 12: Annual O&M Cost Breakdown, Phase 1 (115 MGD)

Assets	Costs (\$ M)
Treatment Facilities*	115
Conveyance Facilities	30
Recharge Facilities	1
Contingency	22
Metropolitan Grand Total	167
Sanitation Districts Grand Total	27

Note:

*Includes costs for the Program Management Information System (PMIS) and Building Information Modeling (BIM).

2.4.5 150 MGD Full-Buildout Program Facilities

Figure 17 shows the 150 MGD full build-out program facilities.

Planned Completion Year: 2041

Facilities Included:

- AWPf
- Backbone conveyance pipeline: reaches 1 through 8B (approximately 39 miles)
- Nine service connections
- Two backbone pump stations
- New DPR pipeline and pump station
- Satellite DPR facility at Weymouth

Delivery Locations:

- LADWP
- West Basin Municipal Water District
- Long Beach Utilities
- Central Basin Municipal Water District
- Upper San Gabriel Valley Municipal Water District
- Three Valleys Municipal Water District
- SGVMWD
- Weymouth Water Treatment Plant



Figure 17: 150 MGD Full-Buildout Program Facilities

2.4.5.1 Program Capital Costs—150 MGD

Table 13 summarizes the estimated capital costs for the full program (150 MGD), expressed in May 2025 dollars. The costs are categorized by major program components, including AWT, conveyance infrastructure, recharge facilities, program management and indirect costs, contingency allowances, regulatory compliance (BABAA and tariff allowances), and shared program costs.

Table 13 also shows Metropolitan and Sanitation Districts cost shares, as well as the total program cost.

Table 13: 150 MGD Full Program Facility Costs

Assets	Cost (\$M)
Advanced Water Treatment (AWT): 150 MGD, Site Preparation, Process Facilities, Ancillary Facilities, Workforce Training Center, Power Station, and Direct Potable Reuse (DPR) Satellite Facilities at Weymouth	1,532
Conveyance Facilities: Backbone Pipeline (Reaches 1 through 8b), Whittier Narrows and Santa Fe Pump Stations, Azusa Pipeline and Two Pump Stations (for Phase 1 DPR), DPR Pipeline and Pump Station (Phase 2)	4,142
Recharge Facilities Improvements (purchase, spreading facilities improvements and groundwater monitoring)	265
Program Management, Engineering and Indirect Costs: — PM (5%), Engineering and Indirect Cost Allowance (25%)	1,782
Program Contingency: AWT (30%), Conveyance (30% R1 & R2; Remaining 35%) and Local/Recharge Facilities (35%)	1,951
Other Allowances: BABAA (1%), Non-Allocatable Tariff Allowance (3.5% for AWT and 3% for Conveyance and Recharge)	108
Other Shared Program Costs: Environmental Mitigation Measures, Community Benefits, and AWPf Permits	62
Metropolitan Grand Total	9,841
Sanitation Districts Grand Total	1,474
PWSC Full Program Grand Total	11,315

Note:

* Property value of the Sanitation Districts' joint treatment site and Workforce Training Facility site (valued at \$164M) is not included.

2.4.5.2 Cashflow—150 MGD

Figure 18 shows the cash flow projections for the full 150 MGD program.

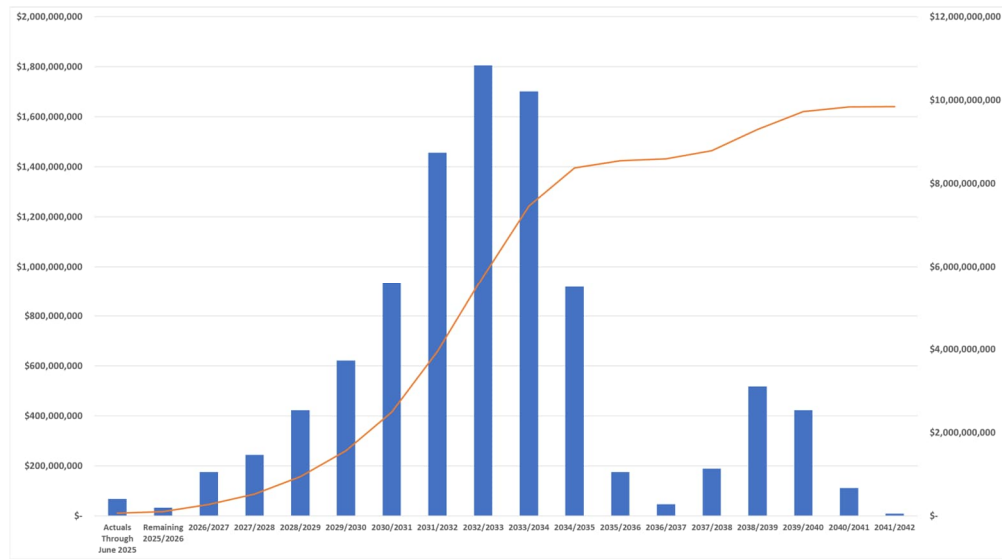


Figure 18: Cash Flow Projections—150 MGD

2.4.5.3 Schedule—150 MGD

Figure 19 shows the implementation schedule for the full 150 MGD program, extending beyond the Phase 1 timeline and incorporating additional conveyance, treatment, and DPR infrastructure to achieve full capacity by 2041.

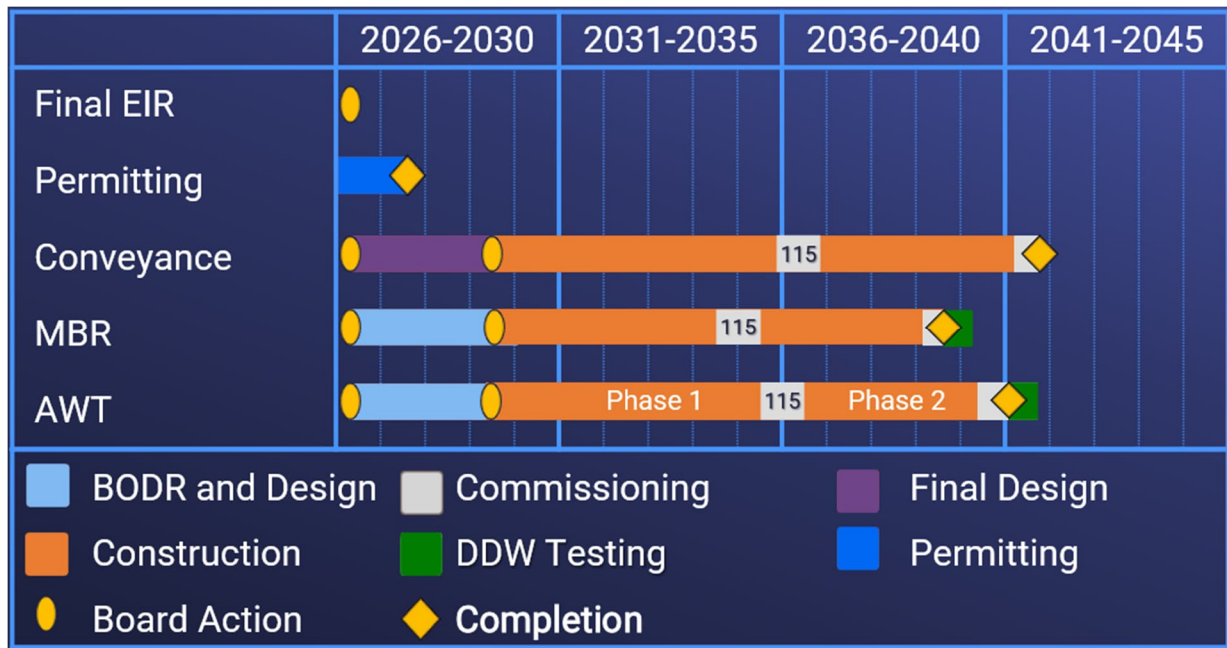


Figure 19: Implementation Schedule—150 MGD

2.4.5.4 O&M Costs—150 MGD

Table 14 shows the estimated annual O&M cost breakdown for the full program in May 2025 dollars.

Table 14: Annual O&M Cost Breakdown, Full Program (150 MGD)

Assets	Costs (\$ M)
Treatment Facilities*	170
Conveyance Facilities	42
Recharge Facilities	1
Contingency	32
Metropolitan Grand Total	245
Sanitation Districts Grand Total	40

Note:

*Includes costs for the Program Management Information System (PMIS) and Building Information Modeling (BIM).

Appendix A Detailed Capital Cost Estimate - by Agency

	Phase 1 Staging					Full Program		Notes
	Original 115MGD (2022/2023)	115MGD (May 2025)	75MGD (May 2025)	45/75MGD (May 2025)	45MGD (May 2025)	Original 150MGD (2022/2023)	150MGD (May 2025)	
Metropolitan Cost Estimate	\$ 4,851	\$ 8,311	\$ 7,139	\$ 7,455	\$ 2,881	\$ 5,834	\$ 9,841	
Advanced Water Treatment (AWT)	\$ 850	\$ 1,098	\$ 826	\$ 826	\$ 654	\$ 1,212	\$ 1,532	The AWT cost were presented to PWSC Committee in March 2024 . In April 2025, updated AWT cost estimates (Stantec updated AWT costs were provided in December 2023) were provided to PMC based on the latest AWPf Conceptual Facilities Plan.
Site Preparation	\$ 15	\$ 28	\$ 19	\$ 19	\$ 13	\$ 41	\$ 60	
Storm Drain Relocation		\$ -	\$ -	\$ -	\$ -		\$ 21	- Escalated from December 2023 to May 2025 using AWT Escalation 8.4% based on actual ENR-CCI LA inflation factors. - Required only for Phase 2 - 150MGD - Shared Costs 50%
Utility Relocation	\$ 2	\$ 2	\$ 2	\$ 2	\$ 2	\$ 22	\$ 2	- Escalated from December 2023 to May 2025 using AWT Escalation 8.4% based on actual ENR-CCI LA inflation factors. - Shared Costs 50% - The estimate was escalated from 2022 and it has been determined that an extra zero was mistakenly inputted. The actual estimated cost should be 3.33 million.
Site Grading	\$ 11	\$ 23	\$ 14	\$ 14	\$ 9	\$ 17	\$ 35	- Site Prep & Site Restoration Included here - Site grading includes site restoration costs. A factor was analyzed and applied per MGD of the scenario in question. - Shared Costs 50%
Soil/Concrete Pile Removal	\$ 2	\$ 2	\$ 2	\$ 2	\$ 2	\$ 2	\$ 2	- Escalated from December 2023 to May 2025 using AWT Escalation 8.4% based on actual ENR-CCI LA inflation factors. - Shared Costs 50%
Abandoned Structure Removal	\$ 1	\$ 1	\$ 1	\$ 1	\$ 1	\$ 1	\$ 1	- Escalated from December 2023 to May 2025 using AWT Escalation 8.4% based on actual ENR-CCI LA inflation factors. - Shared Costs 50%
AWT Process Facilities	\$ 521	\$ 695	\$ 477	\$ 477	\$ 310	\$ 667	\$ 960	
MBR Filtrate/RO Equalization Tank/PS	\$ 60	\$ -	\$ -	\$ -	\$ -	\$ 65	\$ -	
MBR Filtrate		\$ 3	\$ 1	\$ 1	\$ 1		\$ 4	- MBR Filtrate Tank Only - The costs were applied differently since there was no information on how the original estimate applied costs. Some of the RO work is not included in the tank, such as the pumps. The total facility cost should be compared, not a specific line item. Due to different assumptions made throughout the estimate process
RO	\$ 211	\$ 284	\$ 187	\$ 187	\$ 116	\$ 286	\$ 368	- Includes EQ Tank & Pumps
UV-AOP	\$ 44	\$ 80	\$ 46	\$ 46	\$ 30	\$ 57	\$ 98	- Stantec estimate in 2023\$ 115MGD is \$73M and 150MGD - \$94M. The updated cost estimate is in May 2025\$ for115MGD - \$80M and 150MGD is \$97M. The variance is primary due to escalation. - A budgetary quote was obtained for the equipment. Additionally the facility size was modified to accommodate the quoted gear. The parameters between the two estimates are different.
Chemicals Systems		\$ 33	\$ 23	\$ 23	\$ 14	\$ 42	\$ 43	
Lime & Post Treatment Systems	\$ 33	\$ 35	\$ 33	\$ 33	\$ 24		\$ 39	- 115MGD Quicklime usage 34,600 lb./day (CaO) - Hydrated Lime Usage 43,300 lb./day (Ca(OH)2)
Electrical and I&C	\$ 58	\$ 78	\$ 43	\$ 43	\$ 25	\$ 76	\$ 161	-Includes Electrical Buildings, Duct Banks, and E&I - The internal estimate provided was for both phases. Phase 1 would be 68% of the cost and Phase 2 would be the balance. Design was also modified by AECOM/BC so the estimate provided was based on revised parameters.
Backup Generators	\$ -	\$ 28	\$ 28	\$ 28	\$ 28	\$ -	\$ 28	
Yard Piping	\$ 18	\$ 32	\$ 27	\$ 27	\$ 17	\$ 23	\$ 66	
Finished Water Clearwell/PS/Surge tanks	\$ 92	\$ 121	\$ 86	\$ 86	\$ 56	\$ 112	\$ 154	- 115 MGD Design Criteria is noted to be 10 MG for 115 MGD option (Pathway B 115 MGD DPR) - The designs are independent of each other, so the Clearwell tanks are sized to the scenario. There is no adjustment for future upsizing in any of the scenarios. The design criteria was not presented this way.
BABAA Allowance (1%)	\$ 6					\$ 7		Included below at the program level for the updated estimates
Ancillary Facilities	\$ 110	\$ 188	\$ 188	\$ 188	\$ 188	\$ 120	\$ 188	
Operations/Administration/Electrical Buildings	\$ 24	\$ 26	\$ 26	\$ 26	\$ 26	\$ 30	\$ 26	- Escalated from December 2023 using 8.4% factor.
Laboratory	\$ 31	\$ 34	\$ 34	\$ 34	\$ 34	\$ 31	\$ 34	
MWD Warehouse	\$ 13	\$ 21	\$ 21	\$ 21	\$ 21	\$ 16	\$ 21	
MWD Maintenance Building	\$ -	\$ 21	\$ 21	\$ 21	\$ 21	\$ -	\$ 21	
Fueling Facility	\$ -	\$ 2	\$ 2	\$ 2	\$ 2	\$ -	\$ 2	
Parking	\$ 4	\$ 33	\$ 33	\$ 33	\$ 33	\$ 4	\$ 33	
EV facilities	\$ 8	\$ 9	\$ 9	\$ 9	\$ 9	\$ 8	\$ 9	
Demonstration Garden	\$ 0	\$ 8	\$ 8	\$ 8	\$ 8	\$ 0	\$ 8	- Shared costs 50%
Amphitheater/Visitor Center	\$ 2	\$ 7	\$ 7	\$ 7	\$ 7	\$ 2	\$ 7	- Shared costs 50% - Design Criteria has not been established for a deeper analysis. PWSC AWPf Facilities Plan Draft from 2023 is the only document that is known to be available and the design criteria is not stated within.
Tour Galleries	\$ 0.13	\$ 0.14	\$ 0.14	\$ 0.14	\$ 0.14	\$ 0.13	\$ 0.14	- Escalated from December 2023 to May 2025 using AWT Escalation 8.4% based on actual ENR-CCI LA inflation factors. - Shared costs 50%
Public Outreach Facilities	\$ 5	\$ 5	\$ 5	\$ 5	\$ 5	\$ 5	\$ 5	- Escalated from December 2023 to May 2025 using AWT Escalation 8.4% based on actual ENR-CCI LA inflation factors. - Shared costs 50% - AECOM/BC reversed engineered the cost details by taking the square footage from the site plan and developing quantities for foundations, site work, structure and finishes.
Battery Storage	\$ 12	\$ 7	\$ 7	\$ 7	\$ 7	\$ 12	\$ 7	
Solar Panels	\$ 5	\$ 8	\$ 8	\$ 8	\$ 8	\$ 5	\$ 8	
Street Beautification	\$ 6	\$ 6	\$ 6	\$ 6	\$ 6	\$ 6	\$ 6	- Escalated from December 2023 to May 2025 using MBR Escalation 8.4% based on actual ENR-CCI LA inflation factors. - The other 50% of the cost is included below in LACSD Cost estimate
Workforce Training Center	\$ 5	\$ 15	\$ 15	\$ 15	\$ 15	\$ 5	\$ 15	- 50% shared costs - The other 50% of the cost is included below in LACSD Cost estimate - PMC reversed engineered the cost details by taking the square footage from the site plan and developing quantities for foundations, site work, structure and finishes.
Power Substation	\$ 155	\$ 129	\$ 129	\$ 129	\$ 129	\$ 155	\$ 129	- Based on Figure 4-12 in the 2023 Facility Design Draft , in the scope doc the Distribution Switchyard has 4 each SF6 Breakers and 3 each Transformers. AECOM used the provided load calc sheet which shows 102.540KW of connected loads and we added 20% for miscellaneous loads to get to 123,048kw and to get to MVA you add 25% which puts us at 153,810kva or 3 each 55MVA Transformers. AECOM used recent projects for costing out substations similar to this one.
On-site Substation/Switchgear Facilities	\$ 25	\$ 69	\$ 69	\$ 69	\$ 69	\$ 25	\$ 69	- Based on 2023 Draft Facilities Design using Figure 4-12 in the scope doc the Distribution Switchyard has 4 each SF6 Breakers and 3 each Transformers. AECOM used the provided load calc sheet which shows 102.540KW of connected loads and we added 20% for miscellaneous loads to get to 123,048kw and to get to MVA you add 25% which puts us at 153,810kva or 3 each 55MVA Transformers. AECOM used recent projects for costing out substations similar to this one.
SCE Off-site Transmission Facilities	\$ 130	\$ 60	\$ 60	\$ 60	\$ 60	\$ 130	\$ 60	- Based on MOS - Option 1 *MWD owned and operated 112 MVA transformation provided with single substation.
DPR Satellite Facilities at Weymouth (from Azusa)	\$ 45	\$ 45	\$ -	\$ -	\$ -	\$ 225	\$ 180	- Excludes the connection to Azuza - Design was based on providing UV and CIO2 Systems, the scope needs to be defined in order to understand what else should be included. This does not include pipeline upgrades or connectors to connect to Azuza. Scope was limited to the process systems at the facility only.
Conveyance Facilities	\$ 1,805	\$ 3,419	\$ 3,085	\$ 3,085	\$ 889	\$ 2,002	\$ 3,854	
Backbone Pipeline	\$ 1,625	\$ 2,924	\$ 2,881	\$ 2,881	\$ 889	\$ 1,662	\$ 2,924	
Reach 1	\$ 125	\$ 590	\$ 590	\$ 590	\$ 590	\$ 125	\$ 590	
Reach 2	\$ 151	\$ 434	\$ 434	\$ 434	\$ 108	\$ 151	\$ 434	
Reach 3	\$ 53	\$ 119	\$ 119	\$ 119	\$ -	\$ 53	\$ 119	
Reach 4	\$ 183	\$ 254	\$ 254	\$ 254	\$ -	\$ 183	\$ 254	
Reach 5	\$ 79	\$ 365	\$ 365	\$ 365	\$ -	\$ 79	\$ 365	
Reach 6	\$ 65	\$ 282	\$ 282	\$ 282	\$ -	\$ 65	\$ 282	
Reach 7	\$ 93	\$ 336	\$ 336	\$ 336	\$ -	\$ 93	\$ 336	
Reach 8a	\$ 92	\$ 310	\$ 310	\$ 310	\$ -	\$ 92	\$ 310	
Reach 8b		\$ 43	\$ -	\$ -	\$ -		\$ 43	
From Santa Fe Lateral to United Rock Pit 3	\$ 13	\$ -	\$ -	\$ -	\$ -	\$ 13	\$ -	
From Backbone to San Gabriel Coastal Spreading Grounds	\$ 3	\$ -	\$ -	\$ -	\$ -	\$ 3	\$ -	
Backbone Valves and Service Connections	\$ 62	\$ -	\$ -	\$ -	\$ -	\$ 62	\$ -	
Utility Relocation Allowance	\$ 20	\$ -	\$ -	\$ -	\$ -	\$ 23	\$ -	
Separation Requirements Allowance	\$ 46	\$ -	\$ -	\$ -	\$ -	\$ 52	\$ -	
Hazardous Soils and Groundwater Allowance	\$ 66	\$ -	\$ -	\$ -	\$ -	\$ 72	\$ -	
Conveyance System Business Impacts	\$ 6	\$ -	\$ -	\$ -	\$ -	\$ 8	\$ -	
Fiber Optic	\$ 9	\$ -	\$ -	\$ -	\$ -	\$ 11	\$ -	
Right-of-Way/Easement Permit Costs	\$ 173	\$ 191	\$ 191	\$ 191	\$ 191	\$ 191	\$ 191	
Upsized Backbone Pipeline (388.0)	\$ 388	\$ -	\$ -	\$ -	\$ -	\$ 388	\$ -	
Backbone Pump Stations	\$ 118	\$ 328	\$ 204	\$ 204	\$ -	\$ 118	\$ 328	
Whittier Narrows Pump Station	\$ 118	\$ 147	\$ 147	\$ 147	\$ -	\$ 118	\$ 147	
Sante Fe Pump Station		\$ 124	\$ -	\$ -	\$ -		\$ 124	
SCE Substation for Whittier Narrows Pump Station	\$ -	\$ 58	\$ 58	\$ 58	\$ -	\$ -	\$ 58	
DPR Conveyance Facilities (25MGD) - Phase 1	\$ 62	\$ 167	\$ -	\$ -	\$ -	\$ 62	\$ 167	
New 30" Pipelines (Azuza to Weymouth)			\$ -	\$ -	\$ -			
Canyon Pump Station	\$ 62	\$ 148	\$ -	\$ -	\$ -	\$ 62	\$ 148	
Big Dalton Pump Station			\$ -	\$ -	\$ -			
Rehabilitation of Existing Pipeline	\$ -	\$ 19	\$ -	\$ -	\$ -	\$ -	\$ 19	
DPR Conveyance Facilities (60MGD) - Phase 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 160	\$ 435	
Santa Fe Pump Station - Set B Pumps	\$ -	\$ -	\$ -	\$ -	\$ -		\$ 13	
DPR Pump Station	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 160	\$ 85	
DPR Pipeline	\$ -	\$ -	\$ -	\$ -	\$ -		\$ 315	
Improvements at Weymouth WTP	\$ -	\$ -	\$ -	\$ -	\$ -		\$ 22	Connection to Weymouth

	Phase 1 Staging					Full Program		Notes
	Original 115MGD (2022/2023)	115MGD (May 2025)	75MGD (May 2025)	45/75MGD (May 2025)	45MGD (May 2025)	Original 150MGD (2022/2023)	150MGD (May 2025)	
Recharge Facilities and Laterals Improvements	\$ 185	\$ 494	\$ 389	\$ 389	\$ 230	\$ 185	\$ 553	
West Basin - SC-2 Lateral	\$ -	\$ 143	\$ 143	\$ 143	\$ 143	\$ -	\$ 143	
Long Beach - SC-3 Lateral	\$ -	\$ 86	\$ 86	\$ 86	\$ 86	\$ -	\$ 86	
Upper District & Three Valleys - SC-5 Lateral	\$ -	\$ 46	\$ 46	\$ 46	\$ -	\$ -	\$ 46	
Upper District & Three Valleys - SC-6 Lateral	\$ -	\$ 4	\$ 4	\$ 4	\$ -	\$ -	\$ 4	
Upper District & Three Valleys - SC-7 Lateral	\$ -	\$ 7	\$ 7	\$ 7	\$ -	\$ -	\$ 7	
Upper District & Three Valleys - SC-8 Lateral	\$ -	\$ 2	\$ 2	\$ 2	\$ -	\$ -	\$ 2	
Injection Wells	\$ 42	\$ -	\$ -	\$ -	\$ -	\$ 42	\$ -	- assumed to be paid by others
Purchase	\$ 50	\$ 50	\$ 50	\$ 50	\$ -	\$ 50	\$ 50	
United Rock Pit No. 3	\$ 50	\$ 50	\$ 50	\$ 50	\$ -	\$ 50	\$ 50	
Vulcan Durbin	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Vulcan Reliance No.1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Spreading Facilities Improvements	\$ 41	\$ 126	\$ 49	\$ 49	\$ -	\$ 41	\$ 185	- escalated to 2025 based on ENR CCI LA
United Rock Pit No. 3	\$ 41	\$ 49	\$ 49	\$ 49	\$ -	\$ 41	\$ 49	- Assumed available for purchase now, included in 75, 115, and 150 mgd options
Vulcan Durbin	\$ -	\$ 77	\$ -	\$ -	\$ -	\$ -	\$ 77	- Assumed to be available for purchase in 2035, included in 115 mgd and 150 mgd options
Vulcan Reliance No.1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 59	- Assumed to be available for purchase in 2040, included in 150 mgd option only
Relocation of Wells at Canyon Spreading Grounds	\$ 18	\$ 28	\$ -	\$ -	\$ -	\$ 18	\$ 28	- 4 wells @\$7M each
Backbone Laterals by others	\$ 34	\$ -	\$ -	\$ -	\$ -	\$ 34	\$ -	- Assumed to be paid by others, not included in cost update
1 Year Ground Water Monitoring	\$ -	\$ 2	\$ 2	\$ 2	\$ 1	\$ -	\$ 2	- Includes monitoring costs for 1 year
Subtotal	\$ 2,840	\$ 5,011	\$ 4,300	\$ 4,300	\$ 1,773	\$ 3,399	\$ 5,939	
Program Management, Engineering and Indirect Costs	\$ 785	\$ 1,503	\$ 1,290	\$ 1,290	\$ 532	\$ 948	\$ 1,782	
PM Allowance (5%)	\$ 131	\$ 251	\$ 215	\$ 215	\$ 89	\$ 158	\$ 297	- Applied to Construction costs
Engineering and Indirect Cost Allowance (25%) - AWT	\$ 213	\$ 275	\$ 207	\$ 207	\$ 164	\$ 303	\$ 383	- Applied to Construction costs
Engineering and Indirect Cost Allowance (25%) - Conveyance & Recharge	\$ 442	\$ 978	\$ 869	\$ 869	\$ 280	\$ 487	\$ 1,102	- Applied to Construction costs
Other Allowances	\$ -	\$ 89	\$ 76	\$ 76	\$ 32	\$ -	\$ 106	
BABAA Allowance (1%)	\$ -	\$ 50	\$ 43	\$ 43	\$ 18	\$ -	\$ 59	- Applied to Construction costs
Non-Allocatable Tarrieff Allowance (Assume 3.5%) - AWT	\$ -	\$ 10	\$ 7	\$ 7	\$ 6	\$ -	\$ 13	- Used 25% value of AWT as basis for 3.5%, This equates to approx. a 5% tariff on permanent materials and process equipment on AWT and MBR
Non-Allocatable Tarrieff Allowance (Assume 3.0%) - Conveyance & Recharge	\$ -	\$ 29	\$ 26	\$ 26	\$ 8	\$ -	\$ 33	- Used 25% value of Conveyance as basis for 3.0%
Subtotal	\$ 3,625	\$ 6,604	\$ 5,667	\$ 5,667	\$ 2,337	\$ 4,347	\$ 7,826	- Applied to Construction costs
Program Contingency	\$ 1,191	\$ 1,648	\$ 1,413	\$ 1,413	\$ 486	\$ 1,437	\$ 1,951	
AWT Contingency (30%)	\$ -	\$ 329	\$ 248	\$ 248	\$ 196	\$ -	\$ 459	
Conveyance Contingency - Reaches 1&2 (30%)	\$ -	\$ 307	\$ 307	\$ 307	\$ 209	\$ -	\$ 307	
Conveyance Contingency - remaining scope (35%)	\$ -	\$ 838	\$ 722	\$ 722	\$ -	\$ -	\$ 991	
Recharge Facilities & Pure Water Local Facilities (35%)	\$ -	\$ 173	\$ 136	\$ 136	\$ 81	\$ -	\$ 194	
Contingency (35%)	\$ 1,191	\$ -	\$ -	\$ -	\$ -	\$ 1,437	\$ -	- Applied to total including all allowances
Subtotal	\$ 4,816	\$ 8,251	\$ 7,079	\$ 7,079	\$ 2,823	\$ 5,784	\$ 9,777	
PMIS & BIM	\$ -	\$ 2	\$ 2	\$ 2	\$ 2	\$ -	\$ 2	
PMIS Design and Implementation	\$ -	\$ 1	\$ 1	\$ 1	\$ 1	\$ -	\$ 1	- Includes implementation, roll-out and training.
BIM Design and Implementation	\$ -	\$ 1	\$ 1	\$ 1	\$ 1	\$ -	\$ 1	- Excludes 10K/Month Licensing cost
Other Shared Program Costs	\$ 35	\$ 58	\$ 58	\$ 58	\$ 56	\$ 50	\$ 62	- Initial estimate that will be reviewed and revised.
Environmental Mitigation Measures	\$ 15	\$ 20	\$ 20	\$ 20	\$ 20	\$ 20	\$ 20	- 50% shared c costs
Community Benefits	\$ 20	\$ 30	\$ 30	\$ 30	\$ 30	\$ 30	\$ 30	- 50% shared c costs
AWPF Permits	\$ -	\$ 8	\$ 8	\$ 8	\$ 6		\$ 12	-50% shared costs
AWT 45/75 MGD Phasing Additional Costs				\$ 316				- 1% of the contruction cost
45 to 75 MGD Equipment Escalation				\$ 123				17% Equipment Escalation based on Mid-Pt Construction of 45 MGD Facility and for the 40% remaining equipment to get to 75 MGD purchased
45 MGD PDB Mobilization/Demobilization				\$ 26				2.5% of 75 MGD Baseline for AWT – Cost Estimator Provided
45/75 Double Commissioning				\$ 42				4% of 75 MGD Baseline for 45/75 MGD Commissioning Staff
45 to 75 MGD PDB Negative Productivity, added Safety Needs, & Additional General Site/Construction Conditions				\$ 126				12% of 75 MGD Baseline for AWT – Based on PDB Projects reviewed by Cost Estimators

Appendix B Detailed O&M Cost Estimate - by Agency

Annual O&M Cost (\$Million/yr)	Original 115MGD (2022/2023)	115MGD (May 2025)	75MGD (May 2025)	45/75MGD (May 2025)	45MGD (May 2025)	Original 150MGD (May 2025)	150MGD (May 2025)
PWSC WATER PURIFICATION PLANT FACILITIES	\$ 131.64	\$ 135.23	\$ 100.07	\$ 100.07	\$ 70.32	\$ 186.88	\$ 202.57
Power, Chemicals, Maintenance and Consumables	\$ 73.18	\$ 79.33	\$ 58.70	\$ 58.70	\$ 41.25	\$ 107.68	\$ 116.73
AWT Pretreatment Process Facilities	\$ 12.80	\$ 13.88	\$ 10.27	\$ 10.27	\$ 7.22	\$ 27.30	\$ 29.59
HPOLE	\$ 1.80	\$ 1.95	\$ 1.44	\$ 1.44	\$ 1.01	\$ 1.80	\$ 1.95
Sidestream Centrate	\$ 1.10	\$ 1.19	\$ 0.88	\$ 0.88	\$ 0.62	\$ 1.10	\$ 1.19
IPS/Screen	\$ 1.50	\$ 1.63	\$ 1.20	\$ 1.20	\$ 0.85	\$ 2.80	\$ 3.04
MBR	\$ 8.40	\$ 9.11	\$ 6.74	\$ 6.74	\$ 4.73	\$ 21.60	\$ 23.41
AWT Process Facilities	\$ 58.28	\$ 63.18	\$ 46.75	\$ 46.75	\$ 32.85	\$ 75.88	\$ 82.26
Reverse Osmosis	\$ 43.00	\$ 46.61	\$ 34.49	\$ 34.49	\$ 24.24	\$ 56.10	\$ 60.81
UV-AOP	\$ 5.70	\$ 6.18	\$ 4.57	\$ 4.57	\$ 3.21	\$ 7.20	\$ 7.80
Stabilization	\$ 4.20	\$ 4.55	\$ 3.37	\$ 3.37	\$ 2.37	\$ 5.60	\$ 6.07
Effluent Chlorination	\$ 2.39	\$ 2.59	\$ 1.92	\$ 1.92	\$ 1.35	\$ 3.09	\$ 3.35
Balance of Chemicals, Buildings, Electrical	\$ 2.99	\$ 3.24	\$ 2.40	\$ 2.40	\$ 1.69	\$ 3.89	\$ 4.22
DPR Process Facilities	\$ 2.10	\$ 2.28	\$ 1.68	\$ 1.68	\$ 1.18	\$ 4.50	\$ 4.88
DPR (at Weymouth)	\$ 2.10	\$ 2.28	\$ 1.68	\$ 1.68	\$ 1.18	\$ 4.50	\$ 4.88
Equipment Replacement	\$ 9.93	\$ 8.89	\$ 6.58	\$ 6.58	\$ 4.62	\$ 17.04	\$ 18.47
Warren Facility Modifications (HPOLE/Centrate)	\$ 0.09	\$ 0.09	\$ 0.07	\$ 0.07	\$ 0.05	\$ 2.19	\$ 2.37
IPS/Screen	\$ 0.44	\$ 0.47	\$ 0.35	\$ 0.35	\$ 0.25	\$ 0.49	\$ 0.54
MBR	\$ 4.91	\$ 2.74	\$ 2.03	\$ 2.03	\$ 1.43	\$ 6.24	\$ 6.77
AWT	\$ 4.05	\$ 5.14	\$ 3.80	\$ 3.80	\$ 2.67	\$ 5.87	\$ 6.36
DPR	\$ 0.45	\$ 0.45	\$ 0.33	\$ 0.33	\$ 0.23	\$ 2.25	\$ 2.44
Labor	\$ 43.83	\$ 41.91	\$ 31.01	\$ 31.01	\$ 21.79	\$ 55.68	\$ 60.36
AWT Pretreatment Process Facilities	\$ 13.42	\$ 13.42	\$ 9.93	\$ 9.93	\$ 6.98	\$ 16.54	\$ 17.93
Warren Facility Modifications (HPOLE/Centrate)	\$ 0.94	\$ 0.94	\$ 0.69	\$ 0.69	\$ 0.49	\$ 0.94	\$ 1.01
IPS/Screen	\$ 3.12	\$ 3.12	\$ 2.31	\$ 2.31	\$ 1.62	\$ 4.68	\$ 5.07
MBR	\$ 9.36	\$ 9.36	\$ 6.93	\$ 6.93	\$ 4.87	\$ 10.92	\$ 11.84
AWT Process Facilities	\$ 11.23	\$ 11.23	\$ 8.31	\$ 8.31	\$ 5.84	\$ 14.66	\$ 15.90
AWT	\$ 11.23	\$ 11.23	\$ 8.31	\$ 8.31	\$ 5.84	\$ 14.66	\$ 15.90
DPR Process Facilities	\$ 3.74	\$ 3.74	\$ 2.77	\$ 2.77	\$ 1.95	\$ 9.05	\$ 9.81
DPR	\$ 3.74	\$ 3.74	\$ 2.77	\$ 2.77	\$ 1.95	\$ 9.05	\$ 9.81
Additional Ancillary Facilities	\$ 15.43	\$ 13.52	\$ 10.00	\$ 10.00	\$ 7.03	\$ 15.43	\$ 16.73
Public Outreach	\$ 1.08	\$ 1.08	\$ 0.80	\$ 0.80	\$ 0.56	\$ 1.08	\$ 1.17
Laboratory	\$ 12.48	\$ 10.82	\$ 8.00	\$ 8.00	\$ 5.62	\$ 12.48	\$ 13.53
Workforce Facilities (off-site)	\$ 1.87	\$ 1.62	\$ 1.20	\$ 1.20	\$ 0.84	\$ 1.87	\$ 2.03
Other	\$ 4.70	\$ 5.09	\$ 3.77	\$ 3.77	\$ 2.65	\$ 6.47	\$ 7.01
Warren Facility Secondary Treatment and Biosolids	\$ 4.80	\$ 5.20	\$ 3.85	\$ 3.85	\$ 2.71	\$ 6.57	\$ 7.12
Renewable Energy Credits	\$ (0.10)	\$ (0.11)	\$ (0.08)	\$ (0.08)	\$ (0.06)	\$ (0.10)	\$ (0.11)
CONVEYANCE AND RECHARGE FACILITIES	\$ 39.39	\$ 30.56	\$ 22.67	\$ 22.67	\$ 16.17	\$ 54.78	\$ 43.45
Conveyance Facilities	\$ 28.05	\$ 29.58	\$ 22.32	\$ 22.32	\$ 16.17	\$ 43.59	\$ 42.10
Labor	\$ -	\$ 2.53	\$ 1.87	\$ 1.87	\$ 1.32	\$ -	\$ 3.01
Pump Station at AWTF		\$ 0.59	\$ 0.44	\$ 0.44	\$ 0.31		\$ 0.59
Pump Station at Whittier Narrows		\$ 0.59	\$ 0.44	\$ 0.44	\$ 0.31		\$ 0.59
-- WNPS Disinfection Booster PS		\$ 0.08	\$ 0.06	\$ 0.06	\$ 0.04		\$ 0.08
Pump Station at Santa Fe Spreading Grounds		\$ 0.47	\$ 0.35	\$ 0.35	\$ 0.24		\$ 0.47
Pump Station - Azusa 1		\$ 0.36	\$ 0.27	\$ 0.27	\$ 0.19		\$ 0.36
-- Canyon PS Disinfection Booster PS		\$ 0.08	\$ 0.06	\$ 0.06	\$ 0.04		\$ -
Pump Station - Azusa 2		\$ 0.36	\$ 0.27	\$ 0.27	\$ 0.19		\$ 0.36
Pump Station at Santa Fe Spreading Grounds - Set B		\$ -	\$ -	\$ -	\$ -		\$ 0.12
--SFPS Set B Disinfection Booster PS		\$ -	\$ -	\$ -	\$ -		\$ 0.08
Pump Station - DPR		\$ -	\$ -	\$ -	\$ -		\$ 0.36
Maintenance and Repar Costs - Spare Parts/Consumables/Misc.	\$ -	\$ 1.28	\$ 0.95	\$ 0.95	\$ 0.67	\$ -	\$ 1.64
Pump Station at AWTF		\$ 0.28	\$ 0.21	\$ 0.21	\$ 0.15		\$ 0.28
Pump Station at Whittier Narrows		\$ 0.28	\$ 0.21	\$ 0.21	\$ 0.15		\$ 0.28
-- WNPS Disinfection Booster PS		\$ 0.08	\$ 0.06	\$ 0.06	\$ 0.04		\$ 0.08
Pump Station at Santa Fe Spreading Grounds		\$ 0.24	\$ 0.18	\$ 0.18	\$ 0.12		\$ 0.24
Pump Station - Azusa 1		\$ 0.18	\$ 0.13	\$ 0.13	\$ 0.09		\$ 0.18
-- Canyon PS Disinfection Booster PS		\$ 0.04	\$ 0.03	\$ 0.03	\$ 0.02		\$ -
Pump Station - Azusa 2		\$ 0.18	\$ 0.13	\$ 0.13	\$ 0.09		\$ 0.18
Pump Station at Santa Fe Spreading Grounds - Set B		\$ -	\$ -	\$ -	\$ -		\$ 0.18
--SFPS Set B Disinfection Booster PS		\$ -	\$ -	\$ -	\$ -		\$ 0.04
Pump Station - DPR		\$ -	\$ -	\$ -	\$ -		\$ 0.18
Energy (\$0.15/K-hr)	\$ -	\$ 25.77	\$ 19.49	\$ 19.49	\$ 14.19	\$ -	\$ 37.45
Pump Station at AWTF		\$ 6.97	\$ 5.16	\$ 5.16	\$ 3.62		\$ 10.02
Pump Station at Whittier Narrows		\$ 10.99	\$ 8.13	\$ 8.13	\$ 5.72		\$ 13.80
-- WNPS Disinfection Booster PS		\$ 0.03	\$ 0.02	\$ 0.02	\$ 0.01		\$ 0.03
Pump Station at Santa Fe Spreading Grounds		\$ 1.55	\$ 1.15	\$ 1.15	\$ 0.81		\$ 1.55
Pump Station - Azusa 1		\$ 2.31	\$ 1.71	\$ 1.71	\$ 1.20		\$ 2.31
- Canyon PS Disinfection Booster PS		\$ 0.03	\$ 0.02	\$ 0.02	\$ 0.01		\$ -
Pump Station - Azusa 2		\$ 2.25	\$ 1.66	\$ 1.66	\$ 1.17		\$ 2.25
Pump Station at Santa Fe Spreading Grounds - Set B		\$ -	\$ -	\$ -	\$ -		\$ 3.09
--SFPS Set B Disinfection Booster PS		\$ -	\$ -	\$ -	\$ -		\$ 0.03
Pump Station - DPR		\$ -	\$ -	\$ -	\$ -		\$ 2.72
SCE Substation Without replacement coverage (0.39% monthly billing factor)		\$ 1.64	\$ 1.64	\$ 1.64	\$ 1.64		\$ 1.64
Recharge Facilities	\$ 11.34	\$ 0.98	\$ 0.35	\$ 0.35	\$ -	\$ 11.19	\$ 1.36
West Coast Basin Injection Wells	\$ 2.52	\$ -	\$ -	\$ -	\$ -	\$ 2.52	\$ -
Long Beach Injection Wells	\$ 2.52	\$ -	\$ -	\$ -	\$ -	\$ 2.52	\$ -
Coastal Spreading Basins	\$ 1.26	\$ -	\$ -	\$ -	\$ -	\$ 1.23	\$ -
Rio Hondo Spreading Basins	\$ 1.26	\$ -	\$ -	\$ -	\$ -	\$ 1.23	\$ -
Santa Fe Dam Spreading Basins	\$ 1.26	\$ -	\$ -	\$ -	\$ -	\$ 1.23	\$ -
Rock Pit #3 Spreading Basin	\$ 1.26	\$ -	\$ -	\$ -	\$ -	\$ 1.23	\$ -
Canyon Spreading Basins	\$ 1.26	\$ -	\$ -	\$ -	\$ -	\$ 1.23	\$ -
United Rock Pit No. 3	\$ -	\$ 0.35	\$ 0.35	\$ 0.35	\$ -	\$ -	\$ 0.35
Vulcan Durbin	\$ -	\$ 0.63	\$ -	\$ -	\$ -	\$ -	\$ 0.63
Vulcan Quarry No.1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.38
Subtotal - Conveyance + AWPf	\$ 171.03	\$ 165.78	\$ 122.73	\$ 122.73	\$ 86.49	\$ 241.66	\$ 246.03
BIM Maintenance Costs	\$ -	\$ 2.50	\$ 2.50	\$ 2.50	\$ 2.50	\$ -	\$ 2.50
PMIS Maintenance Costs	\$ -	\$ 0.18	\$ 0.18	\$ 0.18	\$ 0.18	\$ -	\$ 0.18
Subtotal	\$ 171.03	\$ 168.46	\$ 125.41	\$ 125.41	\$ 89.17	\$ 241.66	\$ 248.71
Contingency (15%)	\$ 25.65	\$ 25.27	\$ 18.81	\$ 18.81	\$ 13.38	\$ 36.25	\$ 37.31
TOTAL	\$ 196.69	\$ 193.73	\$ 144.23	\$ 144.23	\$ 102.54	\$ 277.90	\$ 286.01
Metropolitan Share	\$ 166.63	\$ 167.26	\$ 124.64	\$ 124.64	\$ 88.78	\$ 240.32	\$ 245.27
LACSD Share	\$ 30.05	\$ 26.47	\$ 19.58	\$ 19.58	\$ 13.76	\$ 37.58	\$ 40.74

Appendix C Detailed Cost Estimate Report for AWPF, 2025

MWD Pure Waters Southern California**AWPF Design Info to Support Cost Estimate - Pure Waters Southern California Conveyance and Advanced Water Treatment Facility Options 25 MGD to 150 MGD****Opinion of Probable Cost - Preliminary Internal Estimate**

Project name	23-021 MWD PWSC Program Management PO Box 54153 Los Angeles CA 90054-0153 USA
Client	Metropolitan Water District of Southern California PO Box 54153 Los Angeles CA 90054-0153
Architect	AECOM B&C
Estimator	Josh Jeffrey, PE
Labor rate table	1 AECOM RATES 25
Equipment rate table	Equip - ACM 25id wrk
Job size	115 MGD
Duration	60 Mo
Project	Water Conveyance
Bus Line	Water
Section	Southwest
Office	Los Angeles, CA
Principal Party	Donal Barron
Estimating Office	North Hampton, NH
Contract 1	Josh Jeffrey
Contract 2	Alexx Williams, Andrew Detwiler, William Melton
Estimate Class Lvl	4/5
Estimate Purpose	Conceptual
FY Estimate	2025
Estimate Number	23-021
Start Date	2025
LD's	NA
Notes	Opinion of Probable Construction Cost - AWWF Design Info to Support Cost Estimate Bid-Build Contract Format Client: Metropolitan Water District of Southern California Program: Pure Waters Southern California Conveyance and Advanced Water Treatment Facility Options 25 MGD to 150 MGD - AAECI Estimate Classification: Class 4/5 Contract Format: Design-Bid-Build PMC/Engineering Consultant: Program Management Consultant, Joint Venture AECOM Brown & Caldwell Basis of Estimate: Date: June 24, 2025 The enclosed Opinion of Probable Cost is only an EOPEC of possible construction costs for budgeting purposes. This EOPEC is limited to the conditions existing at issuance and is not a guaranty of actual price or cost. Uncertain market conditions such as but not limited to: local labor or contractor availability, wages, other work, material market fluctuations, price escalations, force majeure events and developing bidding conditions, imposed trade tariffs, etc. may affect the accuracy of this EOPEC. AECOM is not responsible for any variance from this Opinion of Probable Cost or actual prices and conditions obtained. Basis of Estimate Assumptions: "Placement of Buildings on Site based on site plan developed by Stantec. Building Square Footages Taken from Basis of Design Document (PWSC AWWF Conceptual Facilities Plan - Stantec 12/29/2023) and adjusted by original plant capacity of 115 MGD to approximate the size of buildings based on the new capacity factor." "Stantec Site Plan Scaled to Obtain other Building Square Footages that were not itemized in tables within Appendix H." AWWF Design Info to Support Cost Estimate Spreadsheets provided by project design teams for each estimated scenario. Utilized for quantity of equipment trains, components, itemized pump size / horsepower, tanks sizes, etc. Holding / Storage Tank Sizes Based on Volumes Provided in PWSC TWA Draft Basis of Design v0.1.xlsx Spreadsheet. Quotes obtained and shared by project team during estimating process prior to the date of this BOE. Historic Costs Located in previous estimates for Similar equipment itemized in the AWWF Design Info to Support Cost Estimate Spreadsheets. Facilities with two floors carried Division 05-23 Costs as double hsf quantity in accordance with parameters used in Appendix H "Conceptual Facilities Plan to the Joint Plant." "The Exported Grand Total Direct Cost Format for this Estimate as requested by design team does not include escalation costs or contingency costs and therefore does not meet the parameters established by AAECI for the Current Class 4/5 Estimate provided by AECOM. The Design Team should verify and include in some fashion within their own reporting sheet all indirect cost types shown on the Totals Page included with this estimate export. Process Piping Materials taken as 20% of Total Process Equipment Costs in accordance with parameters used in Appendix H "Conceptual Facilities Plan to the Joint Plant" until details are further defined. Process Piping Installation taken as approximately 17.5% Labor and 7.5% Equipment of Total Process Equipment Costs in accordance with parameters used in Appendix H "Conceptual Facilities Plan to the Joint Plant" until details are further defined. If the notes within a description of an item differ from the quantity of an item, the quantity is the controlling factor. Electrical Buildings called out within the estimate for Major Systems Power. Electrical Clear unit price per square foot carried within estimate. Excavation Work for Major Buildings Associated with the Process Systems Defined in the Estimate. Modifications to offsite Facilities / Systems for Discharge of Flush Waters, Brine, etc. Yard Piping Site Prep Site Improvements / Site Restoration Costs "Yard Piping" Itemized and Listed in Section 08 Appendix H "Conceptual Facilities Plan to the Joint Plant" "Civil" Site Prep, Site Improvements / Site Restoration Costs Itemized and Listed in Section 09 Appendix H "Conceptual Facilities Plan to the Joint Plant" "Additional Site Prep" Itemized and Listed in Section 10 Appendix H "Conceptual Facilities Plan to the Joint Plant" "Wastewater Processes" Itemized and Listed in Section 11 Appendix H "Conceptual Facilities Plan to the Joint Plant" "Power Infrastructure" Itemized and Listed in Section 12 Appendix H "Conceptual Facilities Plan to the Joint Plant" Estimated Grand Total Price Inclusions: Move / Demobe Labor Premium Costs for Overtime based on Actual Labor Hours Estimated. Bond on Subcontractors (0.75% of Total Estimated Direct Costs) Startup, Testing & Commissioning Costs (2% of total Estimated Direct Costs) Labor Force Consumables (Small Tools, Supplies, Safety Equipment) Directly Related to Scopes of Work. GC O&M on Self-Performed Work (L.M.E.O) GC O&M on Subcontractors General Liability Insurance Permits and Fees, by Contractor Pollution Ltd Liability Insurance Professional Liability Insurance Builder's Risk (all risks) Insurance Performance & Payment Bond (%) Estimated Grand Total Price Exclusions: Modifications to offsite Facilities / Systems for Discharge of Flush Waters, Brine, etc. Site Demo Auxiliary Buildings / Structure for Needed Infrastructure Substations / Power Feeds / Duct Banks Electrical Buildings not Specifically called out within the estimate. "Other Facilities" Itemized and Listed in Section 07 Appendix H "Conceptual Facilities Plan to the Joint Plant Site for PWSC" design team should review electrical costs carried in Appendix H as a quick check of these costs are pointing to the conclusion that actual current costs could be substantially higher than shown in Appendix H Original estimate from Stantec missed the 8th generator on a future phase, refer to previous note above. "Additional Site Prep" Itemized and Listed in Section 10 Appendix H "Conceptual Facilities Plan to the Joint Plant" "Wastewater Processes" Itemized and Listed in Section 11 Appendix H "Conceptual Facilities Plan to the Joint Plant" Phasing or Partial Construction is Excluded. Estimate Indirect Cost Exclusions: "Soft Costs" Itemized and Listed in Section 13 Appendix H "Conceptual Facilities Plan to the Joint Plant" "O & M Costs" Itemized and Listed below Section 13 Appendix H "Conceptual Facilities Plan to the Joint Plant" "Power Costs" Itemized and Listed below Section 13 Appendix H "Conceptual Facilities Plan to the Joint Plant" "Chemicals Costs" Itemized and Listed below Section 13 Appendix H "Conceptual Facilities Plan to the Joint Plant" "Equipment Maintenance Costs" Itemized and Listed below Section 13 Appendix H "Conceptual Facilities Plan to the Joint Plant" "Equipment Replacement Costs" Itemized and Listed below Section 13 Appendix H "Conceptual Facilities Plan to the Joint Plant" Escalation Costs Allowances Construction Contingencies CM Fees Owner Allowances Owner Contingency Owner Management Costs Owner Soft Costs - Land, Legal, etc. Estimate Total Cost Shown of Totals Page: Costs Shown on Totals Page were Developed by Mark McClenahan for the MWD PWSC Program as part of the programmatic standards recommended for all prepared estimates. Cost Estimate Legal Disclaimer: The enclosed Opinion of Probable Cost is only an EOPEC of possible construction costs for budgeting purposes. This EOPEC is limited to the conditions existing at issuance and is not a guaranty of actual price or cost. Uncertain market conditions such as but not limited to: local labor or contractor availability, wages, other work, material market fluctuations, price escalations, force majeure events and developing bidding conditions, imposed trade tariffs, etc. may affect the accuracy of this EOPEC. AECOM is not responsible for any variance from this Opinion of Probable Cost or actual prices and conditions obtained.
Report format	Sorted by Pathway / Scenario/Location-1/Process System/Scope of Work -ICSI Division # "Detail" summary Allocate add-ons
Alternates	01.02.01

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
01.02.01					Phase 2 (150 MGD) - 90 mgd IPR to Canyon SG + up to 60 mgd to Weymouth													
	001. - Ozone				Ozone													
		010.-032			Filtrate Pump to Bubble Diffuser Pump Piping													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 Is							/Is			/Is		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					010.-032 Filtrate Pump to Bubble Diffuser Pump Piping								/If			/If		
		030.			LOX Tanks													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 Is							/Is			/Is		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
			Footing		Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	1851.534 sf	370	33,434	2,819				19.58 /sf	36,253	26,427	34 /sf	62,681	0.00%
					Keyway 4"	617.213 If	31	2,786	305				5.01 /If	3,091	2,239	9 /If	5,330	0.00%
					Waterstop 6" Bulb	617.213 If	62	5,529	3,577				14.75 /If	9,106	6,004	24 /If	15,110	0.00%
					Strip & Oil Footing Forms	1851.534 sf	9	829	130				0.52 /sf	959	687	1 /sf	1,646	0.00%
					Footing Rebar	3.813 tn	76	7,818	7,207				3,940.41 /tn	15,025	9,498	6,431 /tn	24,522	0.00%
					Pump Place Wall Footings	103.058 cy	57	6,075			495		63.75 /cy	6,570	4,689	109 /cy	11,259	0.00%
					4500 psi Concrete	103.058 cy			21,642				210.00 /cy	21,642	11,326	320 /cy	32,968	0.00%
					Div. 03 Concrete	1,851.530 hsf	606	56,471	35,680		495		50.04 /hsf	92,646	60,870	82.91 /hsf	153,516	0.00%
					Footing Footing	103.060 cy	606	56,471	35,680		495		898.95 /cy	92,646	60,870	1,489.58 /cy	153,516	0.00%
			Foundation Wall		Foundation Wall													
				Div. 03	Concrete													
					Keyway 4"	92.749 If	5	419	46				5.01 /If	464	336	9 /If	801	0.00%
					Rented Form System 16'->	3709.959 sf	927	83,741	38,955				33.07 /sf	122,696	82,883	55 /sf	205,579	0.00%
					Wall Bulkhead Forms	185.499 sf	102	9,212	974				54.91 /sf	10,185	7,384	95 /sf	17,570	0.00%
					Waterstop 6" Bulb	185.499 If	19	1,662	1,075				14.75 /If	2,737	1,804	24 /If	4,541	0.00%
					Strip & Oil Wall Forms	3709.959 sf	19	1,662	260				0.52 /sf	1,921	1,378	1 /sf	3,299	0.00%
					Hot Water Charge	137.406 cy			1,154				8.40 /cy	1,154	604	13 /cy	1,758	0.00%
					Wall Rebar	12.091 tn	278	28,508	22,853				4,247.84 /tn	51,361	32,840	6,964 /tn	84,201	0.00%
					Finish- Top of Wall & Curb	154.581 sf	9	761					4.93 /sf	761	569	9 /sf	1,330	0.00%
					Pump Place Walls	137.406 cy	192	20,432			989		155.89 /cy	21,421	15,415	268 /cy	36,835	0.00%
					4500 psi Concrete	137.406 cy			28,855				210.00 /cy	28,855	15,101	320 /cy	43,956	0.00%
					Grind/Patch Walls	3709.959 sf	297	26,582	130				7.20 /sf	26,712	19,931	13 /sf	46,643	0.00%
					Liquid Curing Compounds	3709.959 sf	11	997	2,922				1.06 /sf	3,919	2,274	2 /sf	6,193	0.00%
					Div. 03 Concrete	3,710.000 hsf	1,858	173,975	97,223		989		73.37 /hsf	272,187	180,519	122.02 /hsf	452,706	0.01%
					Foundation Wall Foundation Wall	137.410 cy	1,858	173,975	97,223		989		1,980.84 /cy	272,187	180,519	3,294.56 /cy	452,706	0.01%
			Ozone Generators		Ozone Generators													
				Div. 46	Water and Wastewater Equipment													
					Lox Tanks	188.64 MGD	4,527	471,950	603,648		37,619	16,506,000	93,401.28 /MGD	17,619,217	9,318,894	142,802 /MGD	26,938,111	0.61%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	4,527	471,950	603,648		37,619	16,506,000	117,461.45 /mgd	17,619,217	9,318,894	179,587.41 /mgd	26,938,111	0.61%
					Ozone Generators Ozone Generators	150.000 MGD	4,527	471,950	603,648		37,619	16,506,000	117,461.45 /MGD	17,619,217	9,318,894	179,587.41 /MGD	26,938,111	0.61%
			Slab		Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	766.123 sf	260	23,518	1,166				32.22 /sf	24,685	18,162	56 /sf	42,847	0.00%
					S-O-G Const Joints > 1'	1430.523 sf	515	46,497	2,178				34.03 /sf	48,675	35,841	59 /sf	84,516	0.00%
					Strip & Oil SOG Form	2196.646 sf	11	984	154				0.52 /sf	1,138	816	1 /sf	1,953	0.00%
					SOG Rebar	68.877 tn	1,033	105,911	130,178				3,427.68 /tn	236,089	145,700	5,543 /tn	381,789	0.01%
					Mesh Support - bricks	1103 ea	2	226	567				0.72 /ea	794	463	1 /ea	1,256	0.00%
					Finish- Hard Trowel	9536.813 sf	219	19,644					2.06 /sf	19,644	14,679	4 /sf	34,324	0.00%
					Pump Place Slab on Grade	1059.646 cy	1,272	135,057			3,051		130.33 /cy	138,108	100,051	225 /cy	238,159	0.01%
					4500 psi Concrete	1059.646 cy			222,526				210.00 /cy	222,526	116,456	320 /cy	338,982	0.01%
					Liquid Curing Compounds	9536.813 sf	29	2,563	7,510				1.06 /sf	10,073	5,845	2 /sf	15,919	0.00%
					Seal Floors	9536.813 sf	48	4,271	2,003				0.66 /sf	6,274	4,240	1 /sf	10,514	0.00%
					Div. 03 Concrete	9,536.810 hsf	3,389	338,672	366,282		3,051		74.24 /hsf	708,005	442,253	120.61 /hsf	1,150,258	0.03%
					Slab Slab	1,059.650 cy	3,389	338,672	366,282		3,051		668.15 /cy	708,005	442,253	1,085.51 /cy	1,150,258	0.03%
					030. LOX Tanks	9,536.810 sf	10,380	1,041,068	1,102,833		42,154	16,506,000	1,959.99 /sf	18,692,055	10,002,537	3,008.82 /sf	28,694,592	0.65%
		030.-036			Lox Tanks to Ozone Generators Piping													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder 1" Dia Pipe inside 6" Sch 80 pvc	242.350 If							/If			/If		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					030.-036 Lox Tanks to Ozone Generators Piping	150.000 MGD							/MGD			/MGD		
		032.			Bubble Diffuser Pump													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 Is							/Is			/Is		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					032. Bubble Diffuser Pump	1.000 Is							/Is			/Is		

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
		032.-034			Bubble Diffuser Pump to Bubble Diffusers Piping													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 Is							/Is			/Is		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					032.-034 Bubble Diffuser Pump to Bubble Diffusers Piping								/lf			/lf		
		034.			Bubble Diffusers													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 Is							/Is			/Is		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
			Bubler Diffuser		Bubler Diffuser													
				Div. 46	Water and Wastewater Equipment													
					Furnish & Install Distribution Systems & Diffusers (bubblers)	24486.52 sf	3,061	315,726	306,082		46,970	244,865	37.31 /sf	913,643	544,197	60 /sf	1,457,840	0.03%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	3,061	315,726	306,082		46,970	244,865	6,090.95 /mgd	913,643	544,197	9,718.93 /mgd	1,457,840	0.03%
					Bubler Diffuser Bubler Diffuser		3,061	315,726	306,082		46,970	244,865	/sf	913,643	544,197	/sf	1,457,840	0.03%
					034. Bubble Diffusers	150.000 MGD	3,061	315,726	306,082		46,970	244,865	6,090.95 /MGD	913,643	544,197	9,718.93 /MGD	1,457,840	0.03%
		034.-040			Bubble Diffuser to Ozone Piping													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 Is							/Is			/Is		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					034.-040 Bubble Diffuser to Ozone Piping								/lf			/lf		
					034.-040 Bubble Diffuser to Ozone Piping													
		036.			Ozone Generators Building													
			Building		Building													
				Div. 04	Masonry													
					Interior Staging over 10'	12764.64 sf	64	6,590	6,382				1.02 /sf	12,973	7,965	2 /sf	20,937	0.00%
					Staging to 30'	12764.64 sf	64	6,590	9,573				1.27 /sf	16,164	9,635	2 /sf	25,799	0.00%
					Rub Block	12764.64 sf	170	17,570					1.38 /sf	17,570	12,856	2 /sf	30,426	0.00%
					Mortar	919.054 cf			7,170				7.80 /cf	7,170	3,752	12 /cf	10,922	0.00%
					Mortar	1531.757 cf			11,950				7.80 /cf	11,950	6,254	12 /cf	18,204	0.00%
					Grout Fill 10" Block Cells	7901.312 cf	2,370	244,769	50,193				37.33 /cf	294,962	205,364	63 /cf	500,326	0.01%
					Grout Fill 10"Lintel Block	63.823 cf	19	1,977	405				37.33 /cf	2,383	1,659	63 /cf	4,041	0.00%
					Grout Fill 10" Bond Beam	102.117 cf	31	3,163	649				37.33 /cf	3,812	2,654	63 /cf	6,466	0.00%
					Dur-O-Wall 10"	10377.652 lf			4,794				0.46 /lf	4,794	2,509	1 /lf	7,304	0.00%
					Wall Ties	14769 ea	197	20,329	1,861				1.50 /ea	22,190	15,849	3 /ea	38,038	0.00%
					Extruded Control Joints 1/2"	1238.17 lf	7	730	2,899				2.93 /lf	3,629	2,051	5 /lf	5,681	0.00%
					Masonry Rebar # 5	229.764 lbs	3	285	162				1.94 /lbs	446	293	3 /lbs	739	0.00%
					Masonry Rebar # 5	60223.572 lbs	723	74,625	42,397				1.94 /lbs	117,022	76,791	3 /lbs	193,813	0.00%
					Standard Brick	85409 ea	3,416	352,784	89,679				5.18 /ea	442,463	305,062	9 /ea	747,526	0.02%
					10" Block Bond Beam	447 ea	37	3,855	10,255				31.57 /ea	14,110	8,188	50 /ea	22,298	0.00%
					10" Block Lintels	166 ea	14	1,432	3,808				31.57 /ea	5,240	3,041	50 /ea	8,281	0.00%
					10" Fire Rated 3 hr	13110 ea	1,095	113,065	93,605				15.76 /ea	206,671	131,717	26 /ea	338,387	0.01%
					Div. 04 Masonry	12,764.640 vsf	8,210	847,765	335,785				92.72 /vsf	1,183,551	795,638	155.05 /vsf	1,979,189	0.04%
				Div. 05 -15	Div 5/6/7/8/9/10/11/12/22/23													
					Div 5/6/7/8/9/10/11/12/22/23 - \$/SF	17594.61 sf				4,164,644			236.70 /sf	4,164,644	1,398,651	316 /sf	5,563,295	0.13%
					Div. 05 -15 Div 5/6/7/8/9/10/11/12/22/23	17,594.610 hsf				4,164,644			236.70 /hsf	4,164,644	1,398,651	316.19 /hsf	5,563,295	0.13%
					Building Building	17,594.610 hsf	8,210	847,765	335,785	4,164,644			303.97 /hsf	5,348,195	2,194,289	428.68 /hsf	7,542,484	0.17%
			Footing		Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	2426.741 sf	485	43,821	3,695				19.58 /sf	47,516	34,637	34 /sf	82,153	0.00%
					Keyway 4"	808.959 lf	40	3,652	399				5.01 /lf	4,051	2,934	9 /lf	6,986	0.00%
					Waterstop 6" Bulb	808.959 lf	81	7,246	4,689				14.75 /lf	11,935	7,869	24 /lf	19,804	0.00%
					Strip & Oil Footing Forms	2426.741 sf	12	1,087	170				0.52 /sf	1,257	901	1 /sf	2,158	0.00%
					Footing Rebar	4.998 tn	100	10,247	9,446				3,940.28 /tn	19,694	12,449	6,431 /tn	32,143	0.00%
					Pump Place Wall Footings	135.074 cy	75	7,962			648		63.75 /cy	8,611	6,146	109 /cy	14,757	0.00%
					4500 psi Concrete	135.074 cy			28,366				210.00 /cy	28,366	14,845	320 /cy	43,210	0.00%
					Div. 03 Concrete	2,426.740 hsf	794	74,016	46,765		648		50.04 /hsf	121,429	79,781	82.91 /hsf	201,210	0.00%
					Footing Footing	135.070 cy	794	74,016	46,765		648		899.01 /cy	121,429	79,781	1,489.67 /cy	201,210	0.00%
			Ozone Foundation Wall		Ozone Foundation Wall													
				Div. 03	Concrete													
					Keyway 4"	121.567 lf	6	549	60				5.01 /lf	609	441	9 /lf	1,050	0.00%
					Rented Form System 16'->	4862.668 sf	1,216	109,760	51,058				33.07 /sf	160,818	108,635	55 /sf	269,453	0.01%
					Wall Bulkhead Forms	243.133 sf	134	12,074	1,276				54.91 /sf	13,350	9,679	95 /sf	23,029	0.00%
					Waterstop 6" Bulb	243.133 lf	24	2,178	1,409				14.75 /lf	3,587	2,365	24 /lf	5,952	0.00%
					Strip & Oil Wall Forms	4862.668 sf	24	2,178	340				0.52 /sf	2,518	1,806	1 /sf	4,324	0.00%
					Hot Water Charge	180.099 cy			1,513				8.40 /cy	1,513	792	13 /cy	2,305	0.00%
					Wall Rebar	15.848 tn	365	37,366	29,952				4,247.73 /tn	67,318	43,043	6,964 /tn	110,361	0.00%
					Finish- Top of Wall & Curb	202.611 sf	11	998					4.93 /sf	998	746	9 /sf	1,744	0.00%
					Pump Place Walls	180.099 cy	252	26,780			1,296		155.89 /cy	28,076	20,204	268 /cy	48,280	0.00%
					4500 psi Concrete	180.099 cy			37,821				210.00 /cy	37,821	19,793	320 /cy	57,614	0.00%
					Grind/Patch Walls	4862.668 sf	389	34,841	170				7.20 /sf	35,011	26,124	13 /sf	61,135	0.00%
					Liquid Curing Compounds	4862.668 sf	15	1,307	3,829				1.06 /sf	5,136	2,980	2 /sf	8,117	0.00%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Div. 03 Concrete	4,862.670 hsf	2,435	228,031	127,429		1,296		73.37 /hsf	356,756	236,607	122.02 /hsf	593,363	0.01%
					Ozone Foundation Wall Ozone Foundation Wall	180.100 cy	2,435	228,031	127,429		1,296		1,980.88 /cy	356,756	236,607	3,294.63 /cy	593,363	0.01%
			Ozone Generators		Ozone Generators													
				Div. 46	Water and Wastewater Equipment													
					Ozone Generator, closed loop cooling sys. Destruct Units, PSU & controls	188.64 MGD	12,828	1,337,192	1,284,280		106,587	19,912,001	120,017.28 /MGD	22,640,060	12,126,290	184,300 /MGD	34,766,350	0.79%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	12,828	1,337,192	1,284,280		106,587	19,912,001	150,933.73 /mgd	22,640,060	12,126,290	231,775.66 /mgd	34,766,350	0.79%
					Ozone Generators Ozone Generators	150.000 MGD	12,828	1,337,192	1,284,280		106,587	19,912,001	150,933.73 /MGD	22,640,060	12,126,290	231,775.66 /MGD	34,766,350	0.79%
			Ozone Slab		Ozone Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	1412.276 sf	480	43,354	2,150				32.22 /sf	45,504	33,480	56 /sf	78,985	0.00%
					S-O-G Const Joints > 1'	2637.029 sf	949	85,713	4,015				34.03 /sf	89,728	66,069	59 /sf	155,797	0.00%
					Strip & Oil SOG Form	4049.303 sf	20	1,814	283				0.52 /sf	2,097	1,504	1 /sf	3,601	0.00%
					SOG Rebar	126.968 ln	1,905	195,236	239,969				3,427.67 /ln	435,205	268,583	5,543 /ln	703,788	0.02%
					Mesh Support - bricks	2032 ea	4	417	1,045				0.72 /ea	1,462	852	1 /ea	2,314	0.00%
					Finish- Hard Trowel	17580.187 sf	404	36,213					2.06 /sf	36,213	27,060	4 /sf	63,273	0.00%
					Pump Place Slab on Grade	1953.354 cy	2,344	248,964			5,625		130.33 /cy	254,589	184,434	225 /cy	439,022	0.01%
					4500 psi Concrete	1953.354 cy			410,204				210.00 /cy	410,204	214,676	320 /cy	624,880	0.01%
					Liquid Curing Compounds	17580.187 sf	53	4,724	13,844				1.06 /sf	18,569	10,776	2 /sf	29,344	0.00%
					Seal Floors	17580.187 sf	88	7,874	3,692				0.66 /sf	11,566	7,816	1 /sf	19,382	0.00%
					Div. 03 Concrete	17,580.190 hsf	6,247	624,308	675,203		5,625		74.24 /hsf	1,305,137	815,249	120.61 /hsf	2,120,386	0.05%
					Ozone Slab Ozone Slab	1,953.350 cy	6,247	624,308	675,203		5,625		668.15 /cy	1,305,137	815,249	1,085.51 /cy	2,120,386	0.05%
			Unidentified Process Pipe		Unidentified Process Pipe													
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder - Additional Unidentified Process Piping	1 ls			7,204,253				7,204,253.17 /ls	7,204,253	3,770,268	10,974,521 /ls	10,974,521	0.25%
					Estimate Placeholder - Additional Unidentified Installation Labor/Equip.	1 ls	36,663	3,666,287			1,246,537		4,912,824.04 /ls	3,243,360	3,156,184	8,156,184 /ls	8,156,184	0.18%
					Div. 40 Process Integration (Process Piping)	150.000 mgd	36,663	3,666,287	7,204,253		1,246,537		80,780.51 /mgd	12,117,077	7,013,628	127,538.03 /mgd	19,130,705	0.43%
					Unidentified Process Pipe Unidentified Process Pipe	150.000 MGD	36,663	3,666,287	7,204,253		1,246,537		80,780.51 /MGD	12,117,077	7,013,628	127,538.03 /MGD	19,130,705	0.43%
					036. Ozone Generators Building	150.000 MGD	67,177	6,777,599	9,673,716	4,164,644	1,360,694	19,912,001	279,257.69 /MGD	41,888,653	22,465,844	429,029.99 /MGD	64,354,498	1.46%
					Ozone Generators to Bubble Diffusers Piping													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					036.-034 Ozone Generators to Bubble Diffusers Piping								/lf			/lf		
					Ozone Tank													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
			Building		Building													
				Div. 04	Masonry													
					Interior Staging over 10'	15075.48 sf	75	7,784	7,538				1.02 /sf	15,321	9,406	2 /sf	24,728	0.00%
					Staging to 30'	15075.48 sf	75	7,784	11,307				1.27 /sf	19,090	11,379	2 /sf	30,469	0.00%
					Rub Block	15075.48 sf	201	20,751					1.38 /sf	20,751	15,183	2 /sf	35,934	0.00%
					Mortar	1085.435 cf			8,468				7.80 /cf	8,468	4,432	12 /cf	12,900	0.00%
					Mortar	1809.058 cf			14,113				7.80 /cf	14,113	7,386	12 /cf	21,499	0.00%
					Grout Fill 10" Block Cells	9331.722 cf	2,800	289,081	59,280				37.33 /cf	348,361	242,542	63 /cf	590,903	0.01%
					Grout Fill 10"Lintel Block	75.377 cf	23	2,335	479				37.33 /cf	2,814	1,959	63 /cf	4,773	0.00%
					Grout Fill 10 "Bond Beam	120.604 cf	36	3,736	766				37.33 /cf	4,502	3,135	63 /cf	7,637	0.00%
					Dur-O-Wall 10"	12256.365 lf			5,662				0.46 /lf	5,662	2,963	1 /lf	8,626	0.00%
					Wall Ties	17442.33 ea	233	24,009	2,198				1.50 /ea	26,207	18,717	3 /ea	44,924	0.00%
					Extruded Control Joints 1/2"	1462.322 lf	8	862	3,424				2.93 /lf	4,286	2,423	5 /lf	6,709	0.00%
					Masonry Rebar # 5	271.359 lbs	3	336	191				1.94 /lbs	527	346	3 /lbs	873	0.00%
					Masonry Rebar # 5	71126.115 lbs	854	88,135	50,073				1.94 /lbs	138,207	90,693	3 /lbs	228,900	0.01%
					Standard Brick	100870.037 ea	4,035	416,646	105,914				5.18 /ea	522,560	360,286	9 /ea	882,845	0.02%
					10" Block Bond Beam	528 ea	44	4,554	12,114				31.57 /ea	16,667	9,671	50 /ea	26,339	0.00%
					10" Block Lintels	196 ea	16	1,690	4,497				31.57 /ea	6,187	3,590	50 /ea	9,777	0.00%
					10" Fire Rated 3 hr	15483 ea	1,293	133,531	110,549				15.76 /ea	244,080	155,558	26 /ea	399,638	0.01%
					Div. 04 Masonry	15,075.480 vsf	9,696	1,001,233	396,571				92.72 /vsf	1,397,804	939,669	155.05 /vsf	2,337,473	0.05%
				Div. 05 -15	Div 5/6/7/8/9/10/11/12/22/23													
					Div 5/6/7/8/9/10/11/12/22/23 - \$/SF	49164.3 sf				11,637,190			236.70 /sf	11,637,190	3,908,224	316 /sf	15,545,414	0.35%
					Div. 05 -15 Div 5/6/7/8/9/10/11/12/22/23	49,164.300 hsf				11,637,190			236.70 /hsf	11,637,190	3,908,224	316.19 /hsf	15,545,414	0.35%
					Building Building	49,164.300 hsf	9,696	1,001,233	396,571	11,637,190			265.13 /hsf	13,034,994	4,847,893	363.74 /hsf	17,882,887	0.41%
			Elevated Slab		Elevated Slab													
				Div. 03	Concrete													
					Scaffolding - Elevated Deck Shoring from 10' to 24' height	24582.15 sf	492	46,795	20,895				2.75 /sf	67,689	44,175	5 /sf	111,864	0.00%
					Form Suspended Slab 15-up	24582.15 sf	6,146	554,868	57,817				24.92 /sf	612,686	444,358	43 /sf	1,057,044	0.02%
					Slab Edge Form > 1'	1316.511 sf	329	29,716	3,950				25.57 /sf	33,666	24,244	44 /sf	57,910	0.00%
					Pour Strips	25898.661 lf	1,295	115,998	108,774				8.68 /lf	224,772	143,602	14 /lf	368,374	0.01%
					Strip & Oil Suspended Slab Frm	24582.15 sf	123	11,010	1,721				0.52 /sf	12,731	9,128	1 /sf	21,858	0.00%
					Suspended Slab Rebar	182.09 ln	5,463	559,992	344,151				4,965.37 /ln	904,143	590,266	8,207 /ln	1,494,410	0.03%
					Finish- Hard Trowel	24582.15 sf	565	50,636					2.06 /sf	50,636	37,838	4 /sf	88,473	0.00%
					Pump Place Suspended Slab	1820.9 cy	2,367	251,422			9,506		143.30 /cy	260,928	188,276	247 /cy	449,204	0.01%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					4500 psi Concrete	1820.9 cy			382,389				210.00 /cy	382,389	200,119	320 /cy	582,508	0.01%
					Liquid Curing Compounds	24582.15 sf	74	6,606	19,358				1.06 /sf	25,965	15,067	2 /sf	41,032	0.00%
					Div. 03 Concrete	24,582.150 hsf	16,853	1,627,043	939,055		9,506		104.78 /hsf	2,575,604	1,697,073	173.81 /hsf	4,272,677	0.10%
					Elevated Slab Elevated Slab	1,820.900 cy	16,853	1,627,043	939,055		9,506		1,414.47 /cy	2,575,604	1,697,073	2,346.46 /cy	4,272,677	0.10%
			Footing		Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	2866.148 sf	573	51,756	4,364				19.58 /sf	56,119	40,909	34 /sf	97,029	0.00%
					Keyway 4"	955.435 lf	48	4,313	472				5.01 /lf	4,785	3,466	9 /lf	8,250	0.00%
					Waterstop 6" Bulb	955.435 lf	96	8,559	5,538				14.75 /lf	14,096	9,293	24 /lf	23,390	0.00%
					Strip & Oil Footing Forms	2866.148 sf	14	1,284	201				0.52 /sf	1,484	1,064	1 /sf	2,549	0.00%
					Footing Rebar	5.903 tn	118	12,103	11,156				3,940.20 /tn	23,259	14,703	6,431 /tn	37,962	0.00%
					Pump Place Wall Footings	159.532 cy	89	9,404			766		63.75 /cy	10,170	7,259	109 /cy	17,429	0.00%
					4500 psi Concrete	159.532 cy			33,502				210.00 /cy	33,502	17,533	320 /cy	51,035	0.00%
					Div. 03 Concrete	2,866.150 hsf	937	87,418	55,232		766		50.04 /hsf	143,415	94,227	82.91 /hsf	237,642	0.01%
					Footing Footing	159.530 cy	937	87,418	55,232		766		898.99 /cy	143,415	94,227	1,489.64 /cy	237,642	0.01%
			Foundation Wall		Foundation Wall													
				Div. 03	Concrete													
					Keyway 4"	825.562 lf	41	3,727	407				5.01 /lf	4,134	2,995	9 /lf	7,129	0.00%
					Rented Form System 16'->	33022.493 sf	8,256	745,384	346,736				33.07 /sf	1,092,120	737,743	55 /sf	1,829,863	0.04%
					Wall Bulkhead Forms	1651.125 sf	908	81,992	8,668				54.91 /sf	90,661	65,728	95 /sf	156,388	0.00%
					Waterstop 6" Bulb	1651.125 lf	165	14,790	9,570				14.75 /lf	24,360	16,060	24 /lf	40,421	0.00%
					Strip & Oil Wall Forms	33022.493 sf	165	14,790	2,312				0.52 /sf	17,102	12,262	1 /sf	29,364	0.00%
					Hot Water Charge	1223.055 cy			10,274				8.40 /cy	10,274	5,377	13 /cy	15,650	0.00%
					Wall Rebar	107.628 tn	2,475	253,763	203,416				4,247.77 /tn	457,179	292,321	6,964 /tn	749,500	0.02%
					Finish- Top of Wall & Curb	1375.938 sf	76	6,778					4.93 /sf	6,778	5,064	9 /sf	11,842	0.00%
					Pump Place Walls	1223.055 cy	1,712	181,864			8,803		155.89 /cy	190,667	137,206	268 /cy	327,873	0.01%
					4500 psi Concrete	1223.055 cy			256,842				210.00 /cy	256,842	134,415	320 /cy	391,257	0.01%
					Grind/Patch Walls	33022.493 sf	2,642	236,607	1,156				7.20 /sf	237,763	177,409	13 /sf	415,172	0.01%
					Liquid Curing Compounds	33022.493 sf	99	8,874	26,005				1.06 /sf	34,879	20,241	2 /sf	55,120	0.00%
					Div. 03 Concrete	33,022.490 hsf	16,540	1,548,570	865,386		8,803		73.37 /hsf	2,422,759	1,606,819	122.03 /hsf	4,029,578	0.09%
					Foundation Wall Foundation Wall	1,223.060 cy	16,540	1,548,570	865,386		8,803		1,980.90 /cy	2,422,759	1,606,819	3,294.67 /cy	4,029,578	0.09%
			Slab		Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	1974.766 sf	671	60,621	3,007				32.22 /sf	63,628	46,815	56 /sf	110,443	0.00%
					S-O-G Const Joints > 1'	3687.323 sf	1,327	119,852	5,614				34.03 /sf	125,466	92,384	59 /sf	217,849	0.00%
					Strip & Oil SOG Form	5662.089 sf	28	2,536	396				0.52 /sf	2,932	2,102	1 /sf	5,035	0.00%
					SOG Rebar	177.538 tn	2,663	272,997	335,547				3,427.68 /tn	608,544	375,557	5,543 /tn	984,101	0.02%
					Mesh Support - bricks	2840.604 ea	6	582	1,461				0.72 /ea	2,044	1,191	1 /ea	3,235	0.00%
					Finish- Hard Trowel	24582.15 sf	565	50,636					2.06 /sf	50,636	37,838	4 /sf	88,473	0.00%
					Pump Place Slab on Grade	2731.35 cy	3,278	348,123			7,866		130.33 /cy	355,988	257,891	225 /cy	613,879	0.01%
					4500 psi Concrete	2731.35 cy			573,584				210.00 /cy	573,584	300,179	320 /cy	873,762	0.02%
					Liquid Curing Compounds	24582.15 sf	74	6,606	19,358				1.06 /sf	25,965	15,067	2 /sf	41,032	0.00%
					Seal Floors	24582.15 sf	123	11,010	5,162				0.66 /sf	16,172	10,929	1 /sf	27,101	0.00%
					Div. 03 Concrete	24,582.150 hsf	8,736	872,962	944,130		7,866		74.24 /hsf	1,824,957	1,139,954	120.61 /hsf	2,964,911	0.07%
					Slab Slab	2,731.350 cy	8,736	872,962	944,130		7,866		668.15 /cy	1,824,957	1,139,954	1,085.51 /cy	2,964,911	0.07%
			040.-050		040. Ozone Tank	1.000 ls	52,762	5,137,226	3,200,374	11,637,190	26,940		20,001,729.26 /ls	20,001,729	9,385,966	29,387,695.32 /ls	29,387,695	0.67%
					Ozone Tank to BAC Piping													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder - 84" Dia Piping	309.160 lf							/lf			/lf		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					040.-050 Ozone Tank to BAC Piping	150.000 MGD							/MGD			/MGD		
					001. - Ozone Ozone	150.000 MGD	133,380	13,271,619	14,283,003	15,801,834	1,476,758	36,662,866	543,307.20 /MGD	81,496,080	42,398,544	825,964.16 /MGD	123,894,625	2.81%
002. - BAC / BAF					Biologically Active Filtration (BAF) Systems													
					BAC													
					BAC													
				Div. 46	Water and Wastewater Equipment													
					BAF Systems	21 ea	13,440	1,401,039	294,000		111,676	104,946,275	5,083,475.75 /ea	106,752,991	56,159,146	7,757,721 /ea	162,912,137	3.69%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	13,440	1,401,039	294,000		111,676	104,946,275	711,686.60 /mgd	106,752,991	56,159,146	1,086,080.91 /mgd	162,912,137	3.69%
					BAC BAC	150.000 MGD	13,440	1,401,039	294,000		111,676	104,946,275	711,686.60 /MGD	106,752,991	56,159,146	1,086,080.91 /MGD	162,912,137	3.69%
			Building		Building													
				Div. 04	Masonry													
					Interior Staging over 10'	28445.34 sf	142	14,686	14,223				1.02 /sf	28,909	17,749	2 /sf	46,658	0.00%
					Staging to 30'	28445.34 sf	142	14,686	21,334				1.27 /sf	36,020	21,470	2 /sf	57,491	0.00%
					Rub Block	28445.34 sf	379	39,154					1.38 /sf	39,154	28,649	2 /sf	67,803	0.00%
					Mortar	2048.064 cf			15,978				7.80 /cf	15,978	8,362	12 /cf	24,340	0.00%
					Mortar	3413.441 cf			26,630				7.80 /cf	26,630	13,936	12 /cf	40,566	0.00%
					Grout Fill 10" Block Cells	17607.665 cf	5,282	545,456	111,853				37.33 /cf	657,308	457,643	63 /cf	1,114,951	0.03%
					Grout Fill 10"Lintel Block	142.227 cf	43	4,406	903				37.33 /cf	5,309	3,697	63 /cf	9,006	0.00%
					Grout Fill 10"Bond Beam	227.563 cf	68	7,050	1,446				37.33 /cf	8,495	5,915	63 /cf	14,410	0.00%
					Dur-O-Wall 10"	23126.061 lf			10,684				0.46 /lf	10,684	5,591	1 /lf	16,276	0.00%
					Wall Ties	32912 ea	439	45,302	4,147				1.50 /ea	49,449	35,318	3 /ea	84,767	0.00%
					Extruded Control Joints 1/2"	2759.198 lf	16	1,627	6,461				2.93 /lf	8,088	4,572	5 /lf	12,659	0.00%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Masonry Rebar # 5	134205.114 lbs	1,610	166,298	94,480				1.94 /lbs	260,778	171,124	3 /lbs	431,903	0.01%
					Masonry Rebar # 5	512.016 lbs	6	634	360				1.94 /lbs	995	653	3 /lbs	1,648	0.00%
					Standard Brick	190328 ea	7,613	786,154	199,844				5.18 /ea	985,999	679,810	9 /ea	1,665,809	0.04%
					10" Block Bond Beam	996 ea	83	8,590	22,851				31.57 /ea	31,441	18,244	50 /ea	49,684	0.00%
					10" Block Lintels	370 ea	31	3,191	8,489				31.57 /ea	11,680	6,777	50 /ea	18,457	0.00%
					10" Fire Rated 3 hr	29214 ea	2,440	251,952	208,588				15.76 /ea	460,540	293,514	26 /ea	754,054	0.02%
					Div. 04 Masonry	28,445.340 vsf	18,295	1,889,187	748,271				92.72 /vsf	2,637,457	1,773,023	155.05 /vsf	4,410,481	0.10%
				Div. 05 -15	Div 5/6/7/8/9/10/11/12/22/23													
					Div 5/6/7/8/9/10/11/12/22/23 - \$/SF	70825.15 sf				16,764,313			236.70 /sf	16,764,313	5,630,113	316 /sf	22,394,426	0.51%
					Div. 05 -15 Div 5/6/7/8/9/10/11/12/22/23	70,825.150 hsf				16,764,313			236.70 /hsf	16,764,313	5,630,113	316.19 /hsf	22,394,426	0.51%
					Building Building	70,825.150 hsf	18,295	1,889,187	748,271	16,764,313			273.94 /hsf	19,401,770	7,403,136	378.47 /hsf	26,804,906	0.61%
			Elevated Slab		Elevated Slab													
				Div. 03	Concrete													
					Scaffolding - Elevated Deck Shoring from 10' to 24' height	71250.92 sf	1,425	135,633	60,563				2.75 /sf	196,197	128,039	5 /sf	324,236	0.01%
					Form Suspended Slab 15-up	71250.92 sf	17,813	1,608,276	167,582				24.92 /sf	1,775,858	1,287,964	43 /sf	3,063,822	0.07%
					Slab Edge Form > 1'	3815.882 sf	954	86,132	11,448				25.57 /sf	97,580	70,272	44 /sf	167,851	0.00%
					Pour Strips	75066.802 lf	3,753	336,217	315,281				8.68 /lf	651,497	416,228	14 /lf	1,067,726	0.02%
					Strip & Oil Suspended Slab Frm	71250.92 sf	356	31,913	4,988				0.52 /sf	36,900	26,456	1 /sf	63,356	0.00%
					Suspended Slab Rebar	527.785 tn	15,834	1,623,129	997,513				4,965.36 /tn	2,620,642	1,710,876	8,207 /tn	4,331,518	0.10%
					Finish- Hard Trowel	71250.92 sf	1,639	146,767					2.06 /sf	146,767	109,672	4 /sf	256,438	0.01%
					Pump Place Suspended Slab	5277.846 cy	6,861	728,742		27,554			143.30 /cy	756,296	545,714	247 /cy	1,302,010	0.03%
					4500 psi Concrete	5277.846 cy			1,108,348				210.00 /cy	1,108,348	580,042	320 /cy	1,688,389	0.04%
					Liquid Curing Compounds	71250.92 sf	214	19,148	56,110				1.06 /sf	75,258	43,672	2 /sf	118,930	0.00%
					Div. 03 Concrete	71,250.920 hsf	48,849	4,715,955	2,721,832		27,554		104.78 /hsf	7,465,341	4,918,935	173.81 /hsf	12,384,276	0.28%
					Elevated Slab Elevated Slab	5,277.850 cy	48,849	4,715,955	2,721,832		27,554		1,414.47 /cy	7,465,341	4,918,935	2,346.46 /cy	12,384,276	0.28%
			Footing		Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	5407.977 sf	1,082	97,655	8,234				19.58 /sf	105,889	77,189	34 /sf	183,078	0.00%
					Keyway 4"	1802.759 lf	90	8,138	890				5.01 /lf	9,028	6,539	9 /lf	15,567	0.00%
					Waterstop 6" Bulb	1802.759 lf	180	16,149	10,449				14.75 /lf	26,598	17,535	24 /lf	44,133	0.00%
					Strip & Oil Footing Forms	5407.977 sf	27	2,422	379				0.52 /sf	2,801	2,008	1 /sf	4,809	0.00%
					Footing Rebar	11.138 tn	223	22,836	21,051				3,940.26 /tn	43,887	27,742	6,431 /tn	71,629	0.00%
					Pump Place Wall Footings	301.012 cy	167	17,744		1,445			63.75 /cy	19,189	13,696	109 /cy	32,885	0.00%
					4500 psi Concrete	301.012 cy			63,213				210.00 /cy	63,213	33,082	320 /cy	96,294	0.00%
					Div. 03 Concrete	5,407.980 hsf	1,769	164,944	104,214		1,445		50.04 /hsf	270,603	177,792	82.91 /hsf	448,395	0.01%
					Footing Footing	301.010 cy	1,769	164,944	104,214		1,445		898.98 /cy	270,603	177,792	1,489.63 /cy	448,395	0.01%
			Foundation Wall		Foundation Wall													
				Div. 03	Concrete													
					Keyway 4"	880.448 lf	44	3,975	435				5.01 /lf	4,409	3,194	9 /lf	7,603	0.00%
					Rented Form System 16'->	35217.909 sf	8,804	794,939	369,788				33.07 /sf	1,164,727	786,790	55 /sf	1,951,517	0.04%
					Wall Bulkhead Forms	1760.895 sf	968	87,443	9,245				54.91 /sf	96,688	70,097	95 /sf	166,785	0.00%
					Waterstop 6" Bulb	1760.895 lf	176	15,774	10,206				14.75 /lf	25,980	17,128	24 /lf	43,108	0.00%
					Strip & Oil Wall Forms	35217.909 sf	176	15,774	2,465				0.52 /sf	18,239	13,077	1 /sf	31,316	0.00%
					Hot Water Charge	1304.367 cy			10,957				8.40 /cy	10,957	5,734	13 /cy	16,691	0.00%
					Wall Rebar	114.785 tn	2,640	270,637	216,943				4,247.77 /tn	487,581	311,759	6,964 /tn	799,340	0.02%
					Finish- Top of Wall & Curb	1467.414 sf	81	7,228					4.93 /sf	7,228	5,401	9 /sf	12,629	0.00%
					Pump Place Walls	1304.367 cy	1,826	193,955		9,388			155.89 /cy	203,343	146,328	268 /cy	349,671	0.01%
					4500 psi Concrete	1304.367 cy			273,917				210.00 /cy	273,917	143,351	320 /cy	417,268	0.01%
					Grind/Patch Walls	35217.909 sf	2,817	252,338	1,233				7.20 /sf	253,570	189,203	13 /sf	442,774	0.01%
					Liquid Curing Compounds	35217.909 sf	106	9,464	27,734				1.06 /sf	37,198	21,586	2 /sf	58,785	0.00%
					Div. 03 Concrete	35,217.910 hsf	17,639	1,651,527	922,922		9,388		73.37 /hsf	4,297,837	1,713,649	122.03 /hsf	4,297,486	0.10%
					Foundation Wall Foundation Wall	1,304.370 cy	17,639	1,651,527	922,922		9,388		1,980.91 /cy	2,583,837	1,713,649	3,294.68 /cy	4,297,486	0.10%
			Slab		Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	5723.82 sf	1,946	175,709	8,715				32.22 /sf	184,424	135,693	56 /sf	320,117	0.01%
					S-O-G Const Joints > 1'	10687.63 sf	3,848	347,387	16,272				34.03 /sf	363,659	267,772	59 /sf	631,431	0.01%
					Strip & Oil SOG Form	16411.448 sf	82	7,351	1,149				0.52 /sf	8,499	6,094	1 /sf	14,593	0.00%
					SOG Rebar	514.589 tn	7,719	791,273	972,572				3,427.68 /tn	1,763,846	1,088,542	5,543 /tn	2,852,388	0.06%
					Mesh Support - bricks	8234 ea	16	1,688	4,236				0.72 /ea	5,925	3,454	1 /ea	9,378	0.00%
					Finish- Hard Trowel	71250.861 sf	1,639	146,767					2.06 /sf	146,767	109,671	4 /sf	256,438	0.01%
					Pump Place Slab on Grade	7916.762 cy	9,500	1,009,026		22,798			130.33 /cy	1,031,824	747,492	225 /cy	1,779,316	0.04%
					4500 psi Concrete	7916.762 cy			1,662,520				210.00 /cy	1,662,520	870,062	320 /cy	2,532,582	0.06%
					Liquid Curing Compounds	71250.861 sf	214	19,148	56,110				1.06 /sf	75,258	43,672	2 /sf	118,930	0.00%
					Seal Floors	71250.861 sf	356	31,913	14,963				0.66 /sf	46,875	31,676	1 /sf	78,552	0.00%
					Div. 03 Concrete	71,250.860 hsf	25,320	2,530,261	2,736,537		22,798		74.24 /hsf	5,289,596	3,304,129	120.61 /hsf	8,593,725	0.19%
					Slab Slab	7,916.760 cy	25,320	2,530,261	2,736,537		22,798		668.15 /cy	5,289,596	3,304,129	1,085.51 /cy	8,593,725	0.19%
			Unidentified Process Pipe		Unidentified Process Pipe													
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder - Additional Unidentified Process Piping	1 ls			28,334,324				28,334,324.05 /ls	28,334,324	14,828,461	43,162,785 /ls	43,162,785	0.98%
					Estimate Placeholder - Additional Unidentified Installation Labor/Equip.	1 ls	108,146	10,814,628			3,640,961		14,455,588.14 /ls	14,455,588	9,548,073	24,003,661 /ls	24,003,661	0.54%
					Div. 40 Process Integration (Process Piping)	150.000 mgd	108,146	10,814,628	28,334,324		3,640,961		285,266.08 /mgd	42,789,912	24,376,534	447,776.31 /mgd	67,166,446	1.52%
					Unidentified Process Pipe Unidentified Process Pipe	150.000 MGD	108,146	10,814,628	28,334,324		3,640,961		285,266.08 /MGD	42,789,912	24,376,534	447,776.31 /MGD	67,166,446	1.52%
					050. BAC	1.000 ls	233,458	23,167,541	35,862,100	16,764,313	3,813,821	104,946,275	184,554,050.42 /ls	184,554,050	98,053,321	282,607,371.16 /ls	282,607,371	6.41%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
		050.-060			BAC to MF Feed Pump Piping													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 Is							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					050.-060 BAC to MF Feed Pump Piping	1.000 Is							/ls			/ls		
		050.B			BAC / Washwater Blower Room													
			Building		Building													
				Div. 04	Masonry													
					Interior Staging over 10'	12159.42 sf	61	6,278	6,080				1.02 /sf	12,358	7,587	2 /sf	19,945	0.00%
					Staging to 30'	12159.42 sf	61	6,278	9,120				1.27 /sf	15,398	9,178	2 /sf	24,575	0.00%
					Rub Block	12159.42 sf	162	16,737					1.38 /sf	16,737	12,246	2 /sf	28,983	0.00%
					Mortar	875.478 cf			6,830				7.80 /cf	6,830	3,574	12 /cf	10,404	0.00%
					Mortar	1459.13 cf			11,383				7.80 /cf	11,383	5,957	12 /cf	17,341	0.00%
					Grout Fill 10" Block Cells	7526.681 cf	2,258	233,164	47,813				37.33 /cf	280,977	195,627	63 /cf	476,604	0.01%
					Grout Fill 10"Lintel Block	60.797 cf	18	1,883	386				37.33 /cf	2,270	1,580	63 /cf	3,850	0.00%
					Grout Fill 10" Bond Beam	97.275 cf	29	3,013	618				37.33 /cf	3,631	2,528	63 /cf	6,160	0.00%
					Dur-O-Wall 10"	9885.608 lf			4,567				0.46 /lf	4,567	2,390	1 /lf	6,957	0.00%
					Wall Ties	14069 ea	188	19,366	1,773				1.50 /ea	21,138	15,097	3 /ea	36,236	0.00%
					Extruded Control Joints 1/2"	1179.464 lf	7	695	2,762				2.93 /lf	3,457	1,954	5 /lf	5,411	0.00%
					Masonry Rebar # 5	218.87 lbs	3	271	154				1.94 /lbs	425	279	3 /lbs	704	0.00%
					Masonry Rebar # 5	57368.144 lbs	688	71,087	40,387				1.94 /lbs	111,474	73,150	3 /lbs	184,624	0.00%
					Standard Brick	81359 ea	3,254	336,055	85,427				5.18 /ea	421,482	290,597	9 /ea	712,079	0.02%
					10" Block Bond Beam	426 ea	36	3,674	9,774				31.57 /ea	13,447	7,803	50 /ea	21,251	0.00%
					10" Block Lintels	159 ea	13	1,371	3,648				31.57 /ea	5,019	2,912	50 /ea	7,932	0.00%
					10" Fire Rated 3 hr	12488 ea	1,043	107,701	89,164				15.76 /ea	196,865	125,467	26 /ea	322,333	0.01%
					Div. 04 Masonry	12,159.420 vsf	7,821	807,574	319,886				92.72 /vsf	1,127,459	757,928	155.06 /vsf	1,885,388	0.04%
				Div. 05 -15	Div 5/6/7/8/9/10/11/12/22/23													
					Div 5/6/7/8/9/10/11/12/22/23 - \$/SF	12177.76 sf				2,882,476			236.70 /sf	2,882,476	968,048	316 /sf	3,850,524	0.09%
					Div. 05 -15 Div 5/6/7/8/9/10/11/12/22/23	12,177.760 hsf				2,882,476			236.70 /hsf	2,882,476	968,048	316.19 /hsf	3,850,524	0.09%
				Div. 25	Integrated Automation (I&C)													
					I&C	24,491.760 sf							/sf			/sf		
					Div. 25 Integrated Automation (I&C)	150.000 mgd							/mgd			/mgd		
					Building Building	12,178.000 hsf	7,821	807,574	319,886	2,882,476			329.28 /hsf	4,009,935	1,725,977	471.01 /hsf	5,735,912	0.13%
			Elevated Slab		Elevated Slab													
				Div. 03	Concrete													
					Scaffolding - Elevated Deck Shoring from 10' to 24' height	12245.801 sf	245	23,311	10,409				2.75 /sf	33,720	22,006	5 /sf	55,726	0.00%
					Form Suspended Slab 15-up	12245.801 sf	3,061	276,412	28,802				24.92 /sf	305,214	221,361	43 /sf	526,575	0.01%
					Slab Edge Form > 1'	655.831 sf	164	14,803	1,967				25.57 /sf	16,771	12,077	44 /sf	28,848	0.00%
					Pour Strips	12901.632 lf	645	57,785	54,117				8.68 /lf	111,972	71,537	14 /lf	183,509	0.00%
					Strip & Oil Suspended Slab Frm	12245.801 sf	61	5,485	857				0.52 /sf	6,342	4,547	1 /sf	10,889	0.00%
					Suspended Slab Rebar	90.71 tn	2,721	278,966	171,443				4,965.37 /tn	450,409	294,047	8,207 /tn	744,456	0.02%
					Finish- Hard Trowel	12245.801 sf	282	25,225					2.06 /sf	25,225	18,849	4 /sf	44,074	0.00%
					Pump Place Suspended Slab	907.096 cy	1,179	125,248			4,736		143.30 /cy	129,983	93,791	247 /cy	223,775	0.01%
					4500 psi Concrete	907.096 cy			190,490				210.00 /cy	190,490	99,691	320 /cy	290,181	0.01%
					Liquid Curing Compounds	12245.801 sf	37	3,291	9,644				1.06 /sf	12,934	7,506	2 /sf	20,440	0.00%
					Div. 03 Concrete	12,245.800 hsf	8,396	810,526	467,799		4,736		104.78 /hsf	2,128,061	845,412	173.81 /hsf	2,128,473	0.05%
					Elevated Slab Elevated Slab	907.100 cy	8,396	810,526	467,799		4,736		1,414.46 /cy	1,283,061	845,412	2,346.46 /cy	2,128,473	0.05%
			Footing		Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	2311.654 sf	462	41,743	3,519				19.58 /sf	45,262	32,995	34 /sf	78,257	0.00%
					Keyway 4"	770.594 lf	39	3,479	380				5.01 /lf	3,859	2,795	9 /lf	6,654	0.00%
					Waterstop 6" Bulb	770.594 lf	77	6,903	4,466				14.75 /lf	11,369	7,495	24 /lf	18,865	0.00%
					Strip & Oil Footing Forms	2311.654 sf	12	1,035	162				0.52 /sf	1,197	858	1 /sf	2,056	0.00%
					Footing Rebar	4.761 tn	95	9,761	8,998				3,940.22 /tn	18,759	11,859	6,431 /tn	30,618	0.00%
					Pump Place Wall Footings	128.668 cy	71	7,585			618		63.75 /cy	8,202	5,855	109 /cy	14,057	0.00%
					4500 psi Concrete	128.668 cy			27,020				210.00 /cy	27,020	14,141	320 /cy	41,161	0.00%
					Div. 03 Concrete	2,311.650 hsf	756	70,506	44,546		618		50.04 /hsf	115,670	75,998	82.91 /hsf	191,667	0.00%
					Footing Footing	128.670 cy	756	70,506	44,546		618		898.96 /cy	115,670	75,998	1,489.60 /cy	191,667	0.00%
			Foundation Wall		Foundation Wall													
				Div. 03	Concrete													
					Keyway 4"	636.926 lf	32	2,875	314				5.01 /lf	3,190	2,310	9 /lf	5,500	0.00%
					Rented Form System 16'->	25477.011 sf	6,369	575,067	267,509				33.07 /sf	842,576	569,172	55 /sf	1,411,748	0.03%
					Wall Bulkhead Forms	1273.851 sf	701	63,257	6,688				54.91 /sf	69,945	50,709	95 /sf	120,654	0.00%
					Waterstop 6" Bulb	1273.851 lf	127	11,411	7,383				14.75 /lf	18,794	12,390	24 /lf	31,185	0.00%
					Strip & Oil Wall Forms	25477.011 sf	127	11,411	1,783				0.52 /sf	13,194	9,460	1 /sf	22,654	0.00%
					Hot Water Charge	943.593 cy			7,926				8.40 /cy	7,926	4,148	13 /cy	12,074	0.00%
					Wall Rebar	83.036 tn	1,910	195,780	156,938				4,247.78 /tn	352,719	225,529	6,964 /tn	578,247	0.01%
					Finish- Top of Wall & Curb	1061.543 sf	58	5,229					4.93 /sf	5,229	3,907	9 /sf	9,136	0.00%
					Pump Place Walls	943.593 cy	1,321	140,309			6,791		155.89 /cy	147,100	105,855	268 /cy	252,955	0.01%
					4500 psi Concrete	943.593 cy			198,155				210.00 /cy	198,155	103,702	320 /cy	301,857	0.01%
					Grind/Patch Walls	25477.011 sf	2,038	182,544	892				7.20 /sf	183,436	136,872	13 /sf	320,307	0.01%
					Liquid Curing Compounds	25477.011 sf	76	6,847	20,063				1.06 /sf	26,910	15,616	2 /sf	42,525	0.00%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Div. 03 Concrete	25,477.010 hsf	12,760	1,194,730	667,651		6,791		73.37 /hsf	1,869,173	1,239,671	122.03 /hsf	3,108,843	0.07%
					Foundation Wall Foundation Wall	943.590 cy	12,760	1,194,730	667,651		6,791		1,980.92 /cy	1,869,173	1,239,671	3,294.70 /cy	3,108,843	0.07%
			Slab		Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	983.755 sf	334	30,199	1,498				32.22 /sf	31,697	23,322	56 /sf	55,019	0.00%
					S-O-G Const Joints > 1'	1836.889 sf	661	59,706	2,797				34.03 /sf	62,502	46,022	59 /sf	108,525	0.00%
					Strip & Oil SOG Form	2820.644 sf	14	1,263	197				0.52 /sf	1,461	1,047	1 /sf	2,508	0.00%
					SOG Rebar	88.443 tn	1,327	135,997	167,157				3,427.68 /tn	303,154	187,089	5,543 /tn	490,243	0.01%
					Mesh Support - bricks	1416 ea	3	290	729				0.72 /ea	1,019	594	1 /ea	1,613	0.00%
					Finish- Hard Trowel	12245.919 sf	282	25,225					2.06 /sf	25,225	18,849	4 /sf	44,074	0.00%
					Pump Place Slab on Grade	1360.658 cy	1,633	173,422		3,918			130.33 /cy	177,340	128,472	225 /cy	305,812	0.01%
					4500 psi Concrete	1360.658 cy			285,738				210.00 /cy	285,738	149,538	320 /cy	435,276	0.01%
					Liquid Curing Compounds	12245.919 sf	37	3,291	9,644				1.06 /sf	12,935	7,506	2 /sf	20,440	0.00%
					Seal Floors	12245.919 sf	61	5,485	2,572				0.66 /sf	8,056	5,444	1 /sf	13,501	0.00%
					Div. 03 Concrete	12,245.920 hsf	4,352	434,878	470,331		3,918		74.24 /hsf	909,127	567,883	120.61 /hsf	1,477,010	0.03%
					Slab Slab	1,360.660 cy	4,352	434,878	470,331		3,918		668.15 /cy	909,127	567,883	1,085.51 /cy	1,477,010	0.03%
		050.C			050.B BAC / Washwater Blower Room	12,178.000 SF	34,084	3,318,214	1,970,213	2,882,476	16,063		672.28 /SF	8,186,966	4,454,940	1,038.09 /SF	12,641,906	0.29%
					Process Components													
			Air Scour Blower		Air Scour Blower													
				Div. 46	Water and Wastewater Equipment													
					Blower 150 hp	4 ea	1,600	177,527	140,000		5,423		80,737.52 /ea	322,950	204,776	131,932 /ea	527,726	0.01%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	1,600	177,527	140,000		5,423		2,153.00 /mgd	322,950	204,776	3,518.18 /mgd	527,726	0.01%
					Air Scour Blower Air Scour Blower	4.000 ea	1,600	177,527	140,000		5,423		80,737.52 /ea	322,950	204,776	131,931.61 /ea	527,726	0.01%
					050.C Process Components	150.000 MGD	1,600	177,527	140,000		5,423		2,153.00 /MGD	322,950	204,776	3,518.18 /MGD	527,726	0.01%
		080.-050			RO Feed Tank to BAC Backwash Piping													
			Feed Pump		Feed Pump													
				Div. 46	Water and Wastewater Equipment													
					RO Feed Tank Backwash Pump	4 ea	960	100,074	24,000		7,977	2,400,000	633,012.78 /ea	2,532,051	1,345,916	969,492 /ea	3,877,967	0.09%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	960	100,074	24,000		7,977	2,400,000	16,880.34 /mgd	2,532,051	1,345,916	25,853.12 /mgd	3,877,967	0.09%
					Feed Pump Feed Pump	4.000 ea	960	100,074	24,000		7,977	2,400,000	633,012.78 /ea	2,532,051	1,345,916	969,491.85 /ea	3,877,967	0.09%
					080.-050 RO Feed Tank to BAC Backwash Piping	4.000 lf	960	100,074	24,000		7,977	2,400,000	633,012.78 /lf	2,532,051	1,345,916	969,491.85 /lf	3,877,967	0.09%
		085.			BAC Backwash													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
			Feed Pump		Feed Pump													
				Div. 46	Water and Wastewater Equipment													
					Backwash Discharge Pump to AK Warren	4 ea	960	100,074	24,000		7,977	800,000	233,012.78 /ea	932,051	508,574	360,156 /ea	1,440,625	0.03%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	960	100,074	24,000		7,977	800,000	6,213.67 /mgd	932,051	508,574	9,604.17 /mgd	1,440,625	0.03%
					Feed Pump Feed Pump	4.000 ea	960	100,074	24,000		7,977	800,000	233,012.78 /ea	932,051	508,574	360,156.19 /ea	1,440,625	0.03%
					085. BAC Backwash	1.000 ls	960	100,074	24,000		7,977	800,000	932,051.12 /ls	932,051	508,574	1,440,624.75 /ls	1,440,625	0.03%
		085.-050			BAC Backwash to BAC Piping													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					085.-050 BAC Backwash to BAC Piping								/lf			/lf		
					002. - BAC / BAF Biologically Active Filtration (BAF) Systems	150.000 MGD	271,062	26,863,430	38,020,314	19,646,789	3,851,261	108,146,275	1,310,187.12 /MGD	196,528,068	104,567,527	2,007,303.97 /MGD	301,095,596	6.82%
	003. - MF				Membrane Filtration													
		059.			MF (Membrane Filtration) Building													
			Building		Building													
				Div. 04	Masonry													
					Interior Staging over 10'	31570.214 sf	158	16,300	15,785				1.02 /sf	32,085	19,698	2 /sf	51,783	0.00%
					Staging to 30'	31570.214 sf	158	16,300	23,678				1.27 /sf	39,978	23,829	2 /sf	63,806	0.00%
					Rub Block	31570.214 sf	421	43,455					1.38 /sf	43,455	31,796	2 /sf	75,251	0.00%
					Mortar	2217.306 cf			17,298				7.80 /cf	17,298	9,053	12 /cf	26,351	0.00%
					Mortar	3801.096 cf			29,654				7.80 /cf	29,654	15,519	12 /cf	45,173	0.00%
					Grout Fill 10" Block Cells	19533.41 cf	5,860	605,112	124,086				37.33 /cf	729,198	507,695	63 /cf	1,236,893	0.03%
					Grout Fill 10"Lintel Block	105.586 cf	32	3,271	671				37.33 /cf	3,942	2,744	63 /cf	6,686	0.00%
					Grout Fill 10 "Bond Beam	211.172 cf	63	6,542	1,341				37.33 /cf	7,883	5,489	63 /cf	13,372	0.00%
					Dur-O-Wall 10"	25657.398 lf			11,854				0.46 /lf	11,854	6,203	1 /lf	18,057	0.00%
					Wall Ties	36428 ea	486	50,142	4,590				1.50 /ea	54,732	39,091	3 /ea	93,823	0.00%
					Extruded Control Joints 1/2"	3061.994 lf	17	1,805	7,170				2.93 /lf	8,975	5,073	5 /lf	14,048	0.00%
					Masonry Rebar # 5	148665.088 lbs	1,784	184,216	104,660				1.94 /lbs	288,876	189,562	3 /lbs	478,438	0.01%
					Masonry Rebar # 5	527.93 lbs	6	654	372				1.94 /lbs	1,026	673	3 /lbs	1,699	0.00%
					Standard Brick	210856 ea	8,434	870,945	221,399				5.18 /ea	1,092,344	753,132	9 /ea	1,845,476	0.04%
					10" Block Bond Beam	1056 ea	88	9,107	24,227				31.57 /ea	33,335	19,343	50 /ea	52,677	0.00%
					10" Block Lintels	423 ea	35	3,648	9,705				31.57 /ea	13,353	7,748	50 /ea	21,101	0.00%
					10" Fire Rated 3 hr	32415 ea	2,707	279,559	231,443				15.76 /ea	511,002	325,674	26 /ea	836,676	0.02%
					Div. 04 Masonry	31,570.210 vsf	20,250	2,091,056	827,933				92.46 /vsf	2,918,989	1,962,323	154.62 /vsf	4,881,312	0.11%
				Div. 05 -15	Div 5/6/7/8/9/10/11/12/22/23													
					Div 5/6/7/8/9/10/11/12/22/23 - \$/SF	211172 sf				49,984,412			236.70 /sf	49,984,412	16,786,722	316 /sf	66,771,135	1.51%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Div. 05 -15 Div 5/6/7/8/9/10/11/12/22/23	211,172.000 hsf				49,984,412			236.70 /hsf	49,984,412	16,786,722	316.19 /hsf	66,771,135	1.51%
					Building Building	211,172.000 hsf	20,250	2,091,056	827,933	49,984,412			250.52 /hsf	52,903,401	18,749,046	339.31 /hsf	71,652,447	1.62%
			Elevated Slab		Elevated Slab													
				Div. 03	Concrete													
					Scaffolding - Elevated Deck Shoring from 10' to 24' height	105586 sf	2,112	200,994	89,748				2.75 /sf	290,742	189,740	5 /sf	480,481	0.01%
					Form Suspended Slab 15-up	105586 sf	26,397	2,383,287	248,338				24.92 /sf	2,631,625	1,908,621	43 /sf	4,540,247	0.10%
					Slab Edge Form > 1'	5701.644 sf	1,425	128,698	17,105				25.57 /sf	145,802	104,999	44 /sf	250,802	0.01%
					Pour Strips	111287.644 lf	5,564	498,446	467,408				8.68 /lf	965,854	617,065	14 /lf	1,582,919	0.04%
					Strip & Oil Suspended Slab Frm	105586 sf	528	47,291	7,391				0.52 /sf	54,682	39,205	1 /sf	93,887	0.00%
					Suspended Slab Rebar	739.102 tn	22,173	2,273,005	1,396,903				4,965.36 /tn	3,669,907	2,395,885	8,207 /tn	6,065,792	0.14%
					Finish- Hard Trowel	105586 sf	2,428	217,492					2.06 /sf	217,492	162,521	4 /sf	380,013	0.01%
					Pump Place Suspended Slab	7813.364 cy	10,157	1,078,835			40,791		143.30 /cy	1,119,626	807,880	247 /cy	1,927,506	0.04%
					4500 psi Concrete	7813.364 cy			1,640,806				210.00 /cy	1,640,806	858,698	320 /cy	2,499,505	0.06%
					Liquid Curing Compounds	105586 sf	317	28,375	83,149				1.06 /sf	111,524	64,717	2 /sf	176,241	0.00%
					Div. 03 Concrete	105,586.000 hsf	71,102	6,856,422	3,950,848		40,791		102.74 /hsf	10,848,061	7,149,331	170.45 /hsf	17,997,392	0.41%
					Elevated Slab Elevated Slab	7,813.360 cy	71,102	6,856,422	3,950,848		40,791		1,388.40 /cy	10,848,061	7,149,331	2,303.41 /cy	17,997,392	0.41%
			Footing		Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	6018.402 sf	1,204	108,678	9,163				19.58 /sf	117,841	85,902	34 /sf	203,743	0.00%
					Keyway 4"	2006.134 lf	100	9,056	990				5.01 /lf	10,047	7,277	9 /lf	17,324	0.00%
					Waterstop 6" Bulb	2006.134 lf	201	17,971	11,628				14.75 /lf	29,598	19,513	24 /lf	49,111	0.00%
					Strip & Oil Footing Forms	6018.402 sf	30	2,696	421				0.52 /sf	3,117	2,235	1 /sf	5,352	0.00%
					Footing Rebar	11.721 tn	234	24,031	22,153				3,940.23 /tn	46,183	29,194	6,431 /tn	75,378	0.00%
					Pump Place Wall Footings	316.758 cy	176	18,672			1,520		63.75 /cy	20,192	14,413	109 /cy	34,605	0.00%
					4500 psi Concrete	316.758 cy			66,519				210.00 /cy	66,519	34,812	320 /cy	101,331	0.00%
					Div. 03 Concrete	6,018.400 hsf	1,945	181,104	110,874		1,520		48.77 /hsf	293,497	193,346	80.89 /hsf	486,844	0.01%
					Footing Footing	316.760 cy	1,945	181,104	110,874		1,520		926.56 /cy	293,497	193,346	1,536.95 /cy	486,844	0.01%
			Foundation Wall		Foundation Wall													
				Div. 03	Concrete													
					Keyway 4"	1161.446 lf	58	5,243	573				5.01 /lf	5,816	4,213	9 /lf	10,029	0.00%
					Rented Form System 16'->	44979.636 sf	11,245	1,015,280	472,286				33.07 /sf	1,487,567	1,004,873	55 /sf	2,492,440	0.06%
					Wall Bulkhead Forms	2217.306 sf	1,220	110,108	11,641				54.91 /sf	121,749	88,266	95 /sf	210,015	0.00%
					Waterstop 6" Bulb	2217.306 lf	222	19,862	12,852				14.75 /lf	32,714	21,567	24 /lf	54,281	0.00%
					Strip & Oil Wall Forms	44979.636 sf	225	20,146	3,149				0.52 /sf	23,295	16,701	1 /sf	39,996	0.00%
					Hot Water Charge	1689.376 cy			14,191				8.40 /cy	14,191	7,427	13 /cy	21,617	0.00%
					Wall Rebar	105.586 tn	2,428	248,948	199,557				4,247.77 /tn	448,505	286,775	6,964 /tn	735,280	0.02%
					Finish- Top of Wall & Curb	1900.548 sf	105	9,362					4.93 /sf	9,362	6,995	9 /sf	16,357	0.00%
					Pump Place Walls	1689.376 cy	2,365	251,205			12,159		155.89 /cy	263,363	189,519	268 /cy	452,883	0.01%
					4500 psi Concrete	1689.376 cy			354,769				210.00 /cy	354,769	185,665	320 /cy	540,434	0.01%
					Grind/Patch Walls	44979.636 sf	3,598	322,281	1,574				7.20 /sf	323,855	241,647	13 /sf	565,502	0.01%
					Liquid Curing Compounds	44979.636 sf	135	12,088	35,421				1.06 /sf	47,509	27,570	2 /sf	75,079	0.00%
					Div. 03 Concrete	44,979.640 hsf	21,601	2,014,523	1,106,013		12,159		69.65 /hsf	3,132,694	2,081,217	115.92 /hsf	5,213,911	0.12%
					Foundation Wall Foundation Wall	1,689.380 cy	21,601	2,014,523	1,106,013		12,159		1,854.35 /cy	3,132,694	2,081,217	3,086.29 /cy	5,213,911	0.12%
			Slab		Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	8446.88 sf	2,872	259,302	12,860				32.22 /sf	272,162	200,248	56 /sf	472,410	0.01%
					S-O-G Const Joints > 1'	15837.9 sf	5,702	514,790	24,113				34.03 /sf	538,903	396,809	59 /sf	935,712	0.02%
					Strip & Oil SOG Form	24284.78 sf	121	10,877	1,700				0.52 /sf	12,577	9,017	1 /sf	21,594	0.00%
					SOG Rebar	739.102 tn	11,087	1,136,502	1,396,903				3,427.68 /tn	2,533,405	1,563,469	5,543 /tn	4,096,874	0.09%
					Mesh Support - bricks	12143 ea	24	2,490	6,248				0.72 /ea	8,737	5,093	1 /ea	13,830	0.00%
					Finish- Hard Trowel	105586 sf	2,428	217,492					2.06 /sf	217,492	162,521	4 /sf	380,013	0.01%
					Pump Place Slab on Grade	11720.046 cy	14,064	1,493,771			33,750		130.33 /cy	1,527,522	1,106,594	225 /cy	2,634,116	0.06%
					4500 psi Concrete	11720.046 cy			2,461,210				210.00 /cy	2,461,210	1,288,047	320 /cy	3,749,257	0.08%
					Liquid Curing Compounds	105586 sf	317	28,375	83,149				1.06 /sf	111,524	64,717	2 /sf	176,241	0.00%
					Seal Floors	105586 sf	528	47,291	22,173				0.66 /sf	69,464	46,941	1 /sf	116,405	0.00%
					Div. 03 Concrete	105,586.000 hsf	37,143	3,710,890	4,008,355		33,750		73.43 /hsf	7,752,995	4,843,457	119.30 /hsf	12,596,452	0.29%
					Slab Slab	11,720.050 cy	37,143	3,710,890	4,008,355		33,750		661.52 /cy	7,752,995	4,843,457	1,074.78 /cy	12,596,452	0.29%
					059. MF (Membrane Filtration) Building	211,172.000 sf	152,040	14,853,994	10,004,023	49,984,412	88,220		354.83 /sf	74,930,649	33,016,397	511.18 /sf	107,947,046	2.45%
		060.			MF Feed Pump													
			Feed Pump		Feed Pump													
				Div. 46	Water and Wastewater Equipment													
					MF Feed Pumps 7 DUTY + 1 SB	8 ea	1,920	200,148	48,000		15,954	9,600,000	1,233,012.78 /ea	9,864,102	5,203,860	1,883,495 /ea	15,067,963	0.34%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	1,920	200,148	48,000		15,954	9,600,000	65,760.68 /mgd	9,864,102	5,203,860	100,453.08 /mgd	15,067,963	0.34%
					Feed Pump Feed Pump	8.000 ea	1,920	200,148	48,000		15,954	9,600,000	1,233,012.78 /ea	9,864,102	5,203,860	1,883,495.33 /ea	15,067,963	0.34%
					060. MF Feed Pump	8.000 ea	1,920	200,148	48,000		15,954	9,600,000	1,233,012.78 /ea	9,864,102	5,203,860	1,883,495.33 /ea	15,067,963	0.34%
		062.			MF Strainer													
			Auto Strainers		Auto Strainers													
				Div. 46	Water and Wastewater Equipment													
					MF40000 Auto Strainers 7 duty + 1 SB	8 ea	1,920	200,148	48,000		15,954	2,564,373	353,559.45 /ea	2,828,476	1,521,842	543,790 /ea	4,350,317	0.10%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	1,920	200,148	48,000		15,954	2,564,373	18,856.50 /mgd	2,828,476	1,521,842	29,002.11 /mgd	4,350,317	0.10%
					Auto Strainers Auto Strainers	8.000 ea	1,920	200,148	48,000		15,954	2,564,373	353,559.45 /ea	2,828,476	1,521,842	543,789.65 /ea	4,350,317	0.10%
					062. MF Strainer	8.000 ea	1,920	200,148	48,000		15,954	2,564,373	353,559.45 /ea	2,828,476	1,521,842	543,789.65 /ea	4,350,317	0.10%
		062/064-065			MF / MF Strainer to AK Warren HW Piping													

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder - 558' + 2700'	4,267.980 lf							/lf			/lf		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					062./064-065 MF / MF Strainer to AK Warren HW Piping	4,267.980 lf							/lf			/lf		
		063.			Clean In Place / Enhanced Flux Maintenance Tanks													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					CIP / EFM Polyethylene Tanks, 15,000 Gal	8 ea	640	62,023			7,091	870,000	117,389.20 /ea	939,114	504,846	180,495 /ea	1,443,960	0.03%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	640	62,023			7,091	870,000	6,260.76 /mgd	939,114	504,846	9,626.40 /mgd	1,443,960	0.03%
					* unassigned *		640	62,023			7,091	870,000		939,114	504,846		1,443,960	0.03%
					063. Clean In Place / Enhanced Flux Maintenance Tanks	8.000 ea	640	62,023			7,091	870,000	117,389.20 /ea	939,114	504,846	180,495.00 /ea	1,443,960	0.03%
		064.			MF Membranes													
			Blower / Compressor System		Blower / Compressor System													
				Div. 46	Water and Wastewater Equipment													
					Blower Rotary 1,000 cfm	7 ea	335	36,592	5,250			700,000	105,977.47 /ea	741,842	395,659	162,500 /ea	1,137,501	0.03%
					Package Air Compressor 1000cfm	4 ea	160	17,753	24,000		2,712	110,000	38,616.04 /ea	154,464	84,424	59,722 /ea	238,889	0.01%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	495	54,345	29,250		2,712	810,000	5,975.38 /mgd	1,376,390	480,083	9,175.93 /mgd	1,376,390	0.03%
					Blower / Compressor System Blower / Compressor System	1.000 ls	495	54,345	29,250		2,712	810,000	896,306.45 /ls	896,306	480,083	1,376,389.89 /ls	1,376,390	0.03%
			CIP Pump		CIP Pump													
				Div. 46	Water and Wastewater Equipment													
					CIP Pumps	8 ea	1,920	200,148	48,000		15,954	1,000,000	158,012.78 /ea	1,264,102	703,144	245,906 /ea	1,967,246	0.04%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	1,920	200,148	48,000		15,954	1,000,000	8,427.35 /mgd	1,264,102	703,144	13,114.97 /mgd	1,967,246	0.04%
					CIP Pump CIP Pump	8.000 ea	1,920	200,148	48,000		15,954	1,000,000	158,012.78 /ea	1,264,102	703,144	245,905.75 /ea	1,967,246	0.04%
			Membrane System		Membrane System													
				Div. 46	Water and Wastewater Equipment													
					Toray HFUG-2020AN Membrane System	186.02 MGD	18,602	1,939,147	42,215		154,569	20,305,655	120,640.71 /MGD	22,441,585	12,147,503	185,943 /MGD	34,589,088	0.78%
					UF Modules	186.02 MGD	29,763	3,102,635	42,215		247,310	10,282,845	73,513.63 /MGD	13,675,005	7,801,373	115,452 /MGD	21,476,378	0.49%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	48,365	5,041,782	84,430		401,879	30,588,500	240,777.27 /mgd	36,116,590	19,948,876	373,769.77 /mgd	56,065,466	1.27%
					Membrane System Membrane System	150.000 MGD	48,365	5,041,782	84,430		401,879	30,588,500	240,777.27 /MGD	36,116,590	19,948,876	373,769.77 /MGD	56,065,466	1.27%
			Unidentified Process Pipe		Unidentified Process Pipe													
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder - Additional Unidentified Process Piping	1 ls			12,270,213				12,270,212.73 /ls	12,270,213	6,421,483	18,691,695 /ls	18,691,695	0.42%
					Estimate Placeholder - Additional Unidentified Installation Labor/Equip.	1 ls	65,168	6,516,794			3,153,445		9,670,238.95 /ls	9,670,239	6,260,488	15,930,727 /ls	15,930,727	0.36%
					Div. 40 Process Integration (Process Piping)	150.000 mgd	65,168	6,516,794	12,270,213		3,153,445		146,269.68 /mgd	21,940,452	12,681,970	230,816.15 /mgd	34,622,422	0.78%
					Unidentified Process Pipe Unidentified Process Pipe	150.000 MGD	65,168	6,516,794	12,270,213		3,153,445		146,269.68 /MGD	21,940,452	12,681,970	230,816.15 /MGD	34,622,422	0.78%
					064. MF Membranes	150.000 MGD	115,948	11,813,070	12,431,892		3,573,988	32,398,500	401,449.67 /MGD	60,217,450	33,814,074	626,876.83 /MGD	94,031,524	2.13%
		080.			MF Backwash Pump													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					MF Backwash Pumps	7 ea	1,680	175,130	42,000		13,960	1,400,000	233,012.78 /ea	1,631,089	890,004	360,156 /ea	2,521,093	0.06%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	1,680	175,130	42,000		13,960	1,400,000	10,873.93 /mgd	1,631,089	890,004	16,807.29 /mgd	2,521,093	0.06%
					* unassigned *		1,680	175,130	42,000		13,960	1,400,000		1,631,089	890,004		2,521,093	0.06%
					080. MF Backwash Pump	7.000 ea	1,680	175,130	42,000		13,960	1,400,000	233,012.78 /ea	1,631,089	890,004	360,156.19 /ea	2,521,093	0.06%
					003. - MF Membrane Filtration	150.000 MGD	274,149	27,304,513	22,573,915	49,984,412	3,715,167	46,832,873	1,002,739.20 /MGD	150,410,880	74,951,023	1,502,412.69 /MGD	225,361,903	5.11%
	004. - RO				Reverse Osmosis Related													
		089.			RO Feed Tank / RO Pump Building													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 46 Water and Wastewater Equipment	150.000 mgd							/mgd			/mgd		
			Building		Building													
				Div. 04	Masonry													
					Interior Staging over 10'	16653.9 sf	83	8,598	8,327				1.02 /sf	16,925	10,391	2 /sf	27,317	0.00%
					Staging to 30'	16653.9 sf	83	8,598	12,490				1.27 /sf	21,089	12,570	2 /sf	33,659	0.00%
					Rub Block	16653.9 sf	222	22,924					1.38 /sf	22,924	16,773	2 /sf	39,697	0.00%
					Mortar	1199.1 cf			9,355				7.80 /cf	9,355	4,896	12 /cf	14,251	0.00%
					Mortar	1998.45 cf			15,591				7.80 /cf	15,591	8,159	12 /cf	23,750	0.00%
					Grout Fill 10" Block Cells	10308.75 cf	3,093	319,348	65,486				37.33 /cf	384,834	267,936	63 /cf	652,770	0.01%
					Grout Fill 10"Lintel Block	83.25 cf	25	2,579	529				37.33 /cf	3,108	2,164	63 /cf	5,272	0.00%
					Grout Fill 10" Bond Beam	133.2 cf	40	4,126	846				37.33 /cf	4,972	3,462	63 /cf	8,434	0.00%
					Dur-O-Wall 10"	13539.75 lf			6,255				0.46 /lf	6,255	3,274	1 /lf	9,529	0.00%
					Wall Ties	19269 ea	257	26,523	2,428				1.50 /ea	28,951	20,677	3 /ea	49,629	0.00%
					Extruded Control Joints 1/2"	1615.35 lf	9	952	3,782				2.93 /lf	4,735	2,676	5 /lf	7,411	0.00%
					Masonry Rebar # 5	78573.15 lbs	943	97,363	55,316				1.94 /lbs	152,678	100,188	3 /lbs	252,866	0.01%
					Masonry Rebar # 5	299.85 lbs	4	372	211				1.94 /lbs	583	382	3 /lbs	965	0.00%
					Standard Brick	111432 ea	4,457	460,272	117,004				5.18 /ea	577,276	398,011	9 /ea	975,287	0.02%
					10" Block Bond Beam	583 ea	49	5,028	13,375				31.57 /ea	18,403	10,679	50 /ea	29,082	0.00%
					10" Block Lintels	217 ea	18	1,871	4,979				31.57 /ea	6,850	3,975	50 /ea	10,825	0.00%
					10" Fire Rated 3 hr	17104 ea	1,429	147,511	122,123				15.76 /ea	269,634	171,844	26 /ea	441,478	0.01%
					Div. 04 Masonry	16,653.900 vsf	10,711	1,106,066	438,097				92.72 /vsf	1,544,163	1,038,058	155.05 /vsf	2,582,221	0.06%
				Div. 05 -15	Div 5/6/7/8/9/10/11/12/22/23													
					Div 5 - \$/SF	57255.6 sf				3,242,957			56.64 /sf	3,242,957	1,089,112	76 /sf	4,332,069	0.10%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Div 6 - \$/SF	57255.6 sf				98,480			1.72 /sf	98,480	33,073	2 /sf	131,553	0.00%
					Div 7 - \$/SF	57255.6 sf				2,343,472			40.93 /sf	2,343,472	787,030	55 /sf	3,130,501	0.07%
					Div 8 - \$/SF	57255.6 sf				524,461			9.16 /sf	524,461	176,135	12 /sf	700,596	0.02%
					Div 9 - \$/SF	57255.6 sf				2,061,202			36.00 /sf	2,061,202	692,232	48 /sf	2,753,434	0.06%
					Div 10 - \$/SF	57255.6 sf				109,931			1.92 /sf	109,931	36,919	3 /sf	146,850	0.00%
					Div 11 - \$/SF	57255.6 sf				54,393			0.95 /sf	54,393	18,267	1 /sf	72,660	0.00%
					Div 12 - \$/SF	57255.6 sf				21,185			0.37 /sf	21,185	7,115	0 /sf	28,299	0.00%
					Div 22 - \$/SF	57255.6 sf				349,832			6.11 /sf	349,832	117,487	8 /sf	467,319	0.01%
					Div 23 - \$/SF	57255.6 sf				3,359,186			58.67 /sf	3,359,186	1,128,146	78 /sf	4,487,332	0.10%
					Div. 05 -15 Div 5/6/7/8/9/10/11/12/22/23	57,255.600 hsf				12,165,097			212.47 /hsf	12,165,097	4,085,516	283.83 /hsf	16,250,613	0.37%
					Building Building	57,255.600 hsf	10,711	1,106,066	438,097	12,165,097			239.44 /hsf	13,709,260	5,123,574	328.93 /hsf	18,832,834	0.43%
			Elevated Slab		Elevated Slab													
				Div. 03	Concrete													
					Scaffolding - Elevated Deck Shoring from 10' to 24' height	28627.8 sf	573	54,496	24,334				2.75 /sf	78,830	51,445	5 /sf	130,274	0.00%
					Form Suspended Slab 15-up	28627.8 sf	7,157	646,187	67,333				24.92 /sf	713,519	517,489	43 /sf	1,231,009	0.03%
					Slab Edge Form > 1'	1545.9 sf	386	34,894	4,638				25.57 /sf	39,532	28,469	44 /sf	68,000	0.00%
					Pour Strips	30173.7 lf	1,509	135,145	126,730				8.68 /lf	261,875	167,306	14 /lf	429,181	0.01%
					Strip & Oil Suspended Slab Frm	28627.8 sf	143	12,822	2,004				0.52 /sf	14,826	10,630	1 /sf	25,456	0.00%
					Suspended Slab Rebar	200.4 tn	6,012	616,302	378,756				4,965.36 /tn	995,058	649,620	8,207 /tn	1,644,678	0.04%
					Finish- Hard Trowel	28627.8 sf	658	58,969					2.06 /sf	58,969	44,065	4 /sf	103,034	0.00%
					Pump Place Suspended Slab	2118.45 cy	2,754	292,506			11,060		143.30 /cy	303,566	219,042	247 /cy	522,608	0.01%
					4500 psi Concrete	2118.45 cy			444,875				210.00 /cy	444,875	232,820	320 /cy	677,695	0.02%
					Liquid Curing Compounds	28627.8 sf	86	7,693	22,544				1.06 /sf	30,238	17,547	2 /sf	47,785	0.00%
					Div. 03 Concrete	28,627.800 hsf	19,278	1,859,015	1,071,212		11,060		102.74 /hsf	2,941,287	1,938,432	170.45 /hsf	4,879,719	0.11%
					Elevated Slab Elevated Slab	2,118.450 cy	19,278	1,859,015	1,071,212		11,060		1,388.41 /cy	2,941,287	1,938,432	2,303.44 /cy	4,879,719	0.11%
			Footing		Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	3177.6 sf	636	57,380	4,838				19.58 /sf	62,218	45,355	34 /sf	107,572	0.00%
					Keyway 4"	1059.15 lf	53	4,781	523				5.01 /lf	5,304	3,842	9 /lf	9,146	0.00%
					Waterstop 6" Bulb	1059.15 lf	106	9,488	6,139				14.75 /lf	15,626	10,302	24 /lf	25,929	0.00%
					Strip & Oil Footing Forms	3177.6 sf	16	1,423	222				0.52 /sf	1,646	1,180	1 /sf	2,825	0.00%
					Footing Rebar	21.47 tn	429	44,019	40,579				3,940.28 /tn	84,598	53,478	6,431 /tn	138,075	0.00%
					Pump Place Wall Footings	171.75 cy	95	10,124			824		63.75 /cy	10,949	7,815	109 /cy	18,763	0.00%
					4500 psi Concrete	171.75 cy			36,068				210.00 /cy	36,068	18,876	320 /cy	54,943	0.00%
					Div. 03 Concrete	3,177.600 hsf	1,335	127,215	88,369		824		68.10 /hsf	216,408	140,846	112.43 /hsf	357,254	0.01%
					Footing Footing	171.750 cy	1,335	127,215	88,369		824		1,260.02 /cy	216,408	140,846	2,080.08 /cy	357,254	0.01%
			Foundation Wall		Foundation Wall													
				Div. 03	Concrete													
					Keyway 4"	356.85 lf	18	1,611	176				5.01 /lf	1,787	1,294	9 /lf	3,082	0.00%
					Rented Form System 16'->	14274.75 sf	3,569	322,210	149,885				33.07 /sf	472,095	318,907	55 /sf	791,001	0.02%
					Wall Bulkhead Forms	713.7 sf	393	35,441	3,747				54.91 /sf	39,188	28,411	95 /sf	67,599	0.00%
					Waterstop 6" Bulb	713.7 lf	71	6,393	4,137				14.75 /lf	10,530	6,942	24 /lf	17,472	0.00%
					Strip & Oil Wall Forms	14274.75 sf	71	6,394	999				0.52 /sf	7,393	5,300	1 /sf	12,693	0.00%
					Hot Water Charge	528.15 cy			4,436				8.40 /cy	4,436	2,322	13 /cy	6,758	0.00%
					Wall Rebar	42.9 tn	987	101,149	81,081				4,247.78 /tn	182,230	116,518	6,964 /tn	298,747	0.01%
					Finish- Top of Wall & Curb	599.55 sf	33	2,953					4.93 /sf	2,953	2,207	9 /sf	5,160	0.00%
					Pump Place Walls	528.15 cy	739	78,534			3,801		155.89 /cy	82,335	59,249	268 /cy	141,585	0.00%
					4500 psi Concrete	528.15 cy			110,912				210.00 /cy	110,912	58,044	320 /cy	168,956	0.00%
					Grind/Patch Walls	14274.75 sf	1,142	102,279	500				7.20 /sf	102,779	76,689	13 /sf	179,468	0.00%
					Liquid Curing Compounds	14274.75 sf	43	3,836	11,241				1.06 /sf	15,077	8,749	2 /sf	23,827	0.00%
					Div. 03 Concrete	14,274.750 hsf	7,066	660,800	367,114		3,801		72.28 /hsf	1,031,715	684,633	120.24 /hsf	1,716,348	0.04%
					Foundation Wall Foundation Wall	528.150 cy	7,066	660,800	367,114		3,801		1,953.45 /cy	1,031,715	684,633	3,249.74 /cy	1,716,348	0.04%
			Slab		Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	2290.2 sf	779	70,304	3,487				32.22 /sf	73,791	54,293	56 /sf	128,084	0.00%
					S-O-G Const Joints > 1'	4294.2 sf	1,546	139,577	6,538				34.03 /sf	146,115	107,589	59 /sf	253,704	0.01%
					Strip & Oil SOG Form	6584.4 sf	33	2,949	461				0.52 /sf	3,410	2,445	1 /sf	5,855	0.00%
					SOG Rebar	200.4 tn	3,006	308,151	378,756				3,427.68 /tn	686,907	423,919	5,543 /tn	1,110,826	0.03%
					Mesh Support - bricks	3321 ea	7	681	1,709				0.72 /ea	2,390	1,393	1 /ea	3,782	0.00%
					Finish- Hard Trowel	28627.8 sf	658	58,969					2.06 /sf	58,969	44,065	4 /sf	103,034	0.00%
					Pump Place Slab on Grade	3177.6 cy	3,813	404,999			9,151		130.33 /cy	414,150	300,026	225 /cy	714,175	0.02%
					4500 psi Concrete	3177.6 cy			667,296				210.00 /cy	667,296	349,222	320 /cy	1,016,518	0.02%
					Liquid Curing Compounds	28627.8 sf	86	7,693	22,544				1.06 /sf	30,238	17,547	2 /sf	47,785	0.00%
					Seal Floors	28627.8 sf	143	12,822	6,012				0.66 /sf	18,834	12,727	1 /sf	31,561	0.00%
					Div. 03 Concrete	28,627.800 hsf	10,071	1,006,146	1,086,803		9,151		73.43 /hsf	2,102,100	1,313,225	119.30 /hsf	3,415,324	0.08%
					Slab Slab	3,177.600 cy	10,071	1,006,146	1,086,803		9,151		661.54 /cy	2,102,100	1,313,225	1,074.81 /cy	3,415,324	0.08%
					089. RO Feed Tank / RO Pump Building	57,255.600 sf	48,461	4,759,242	3,051,594	12,165,097	24,836		349.32 /sf	20,000,769	9,200,711	510.02 /sf	29,201,480	0.66%
			090.		RO Feed Tank													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 46 Water and Wastewater Equipment	150.000 mgd							/mgd			/mgd		
					090. RO Feed Tank	1.000 ls							/ls			/ls		

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
		090.-080/085			RO Feed Tank to MF Backwash Pump/BAC Backwash Piping													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder	1.000 Is							/Is			/Is		
					Div. 46 Water and Wastewater Equipment	150.000 mgd							/mgd			/mgd		
					090.-080/085 RO Feed Tank to MF Backwash Pump/BAC Backwash Piping								/If			/If		
		090.-100			RO Feed Tank to RO Transfer Pump Piping													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder	1.000 Is							/Is			/Is		
					Div. 46 Water and Wastewater Equipment	150.000 mgd							/mgd			/mgd		
					090.-100 RO Feed Tank to RO Transfer Pump Piping								/If			/If		
					RO Transfer Pump													
		100.			RO Transfer Pumps													
				Div. 46	Water and Wastewater Equipment													
					RO Transfer Pumps 8 DUTY + 1 SB	9 ea	2,160	225,167	54,000		17,948	13,162,500	1,495,512.78 /ea	13,459,615	7,090,732	2,283,372 /ea	20,550,347	0.47%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	2,160	225,167	54,000		17,948	13,162,500	89,730.77 /mgd	13,459,615	7,090,732	137,002.31 /mgd	20,550,347	0.47%
					RO Transfer Pumps RO Transfer Pumps	9.000 ea	2,160	225,167	54,000		17,948	13,162,500	1,495,512.78 /ea	13,459,615	7,090,732	2,283,371.86 /ea	20,550,347	0.47%
					100. RO Transfer Pump	9.000 ea	2,160	225,167	54,000		17,948	13,162,500	1,495,512.78 /ea	13,459,615	7,090,732	2,283,371.86 /ea	20,550,347	0.47%
		100.-110			RO Transfer Pump to Cartridge Filter Piping													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder	1.000 Is							/Is			/Is		
					Div. 46 Water and Wastewater Equipment	150.000 mgd							/mgd			/mgd		
					100.-110 RO Transfer Pump to Cartridge Filter Piping								/If			/If		
					Cartridge Filter													
		110.																
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder - Cartridge Filter	20 ea			1,900,000				95,000.00 /ea	1,900,000	994,344	144,717 /ea	2,894,344	0.07%
					Div. 46 Water and Wastewater Equipment	150.000 mgd			1,900,000				12,666.67 /mgd	1,900,000	994,344	19,295.63 /mgd	2,894,344	0.07%
					* unassigned *				1,900,000					1,900,000	994,344		2,894,344	0.07%
					110. Cartridge Filter	20.000 ea			1,900,000				95,000.00 /ea	1,900,000	994,344	144,717.22 /ea	2,894,344	0.07%
		110.-130			Cartridge Filter to RO Feed Pump Piping													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder	1.000 Is							/Is			/Is		
					Div. 46 Water and Wastewater Equipment	150.000 mgd							/mgd			/mgd		
					110.-130 Cartridge Filter to RO Feed Pump Piping								/If			/If		
		130.																
					RO Feed Pump													
					CIP Pump													
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder - Cartridge Filter	2 ea			190,000				95,000.00 /ea	190,000	99,434	144,717 /ea	289,434	0.01%
					CIP Feed Pump Skids 1 DUTY + 1 SB	2 ea	480	50,037	12,000		3,988	1,125,000	595,512.78 /ea	1,191,026	633,708	912,367 /ea	1,824,733	0.04%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	480	50,037	202,000		3,988	1,125,000	9,206.84 /mgd	1,381,026	733,142	14,094.45 /mgd	2,114,168	0.05%
					CIP Pump CIP Pump	4.000 ea	480	50,037	202,000		3,988	1,125,000	345,256.39 /ea	1,381,026	733,142	528,541.92 /ea	2,114,168	0.05%
					Feed Pump													
				Div. 46	Water and Wastewater Equipment													
					RO Feed Pumps 19 DUTY + 1 SB	20 ea	4,800	500,371	120,000		39,884	27,000,000	1,383,012.78 /ea	27,660,256	14,579,668	2,111,996 /ea	42,239,924	0.96%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	4,800	500,371	120,000		39,884	27,000,000	184,401.70 /mgd	27,660,256	14,579,668	281,599.49 /mgd	42,239,924	0.96%
					Feed Pump Feed Pump	20.000 ea	4,800	500,371	120,000		39,884	27,000,000	1,383,012.78 /ea	27,660,256	14,579,668	2,111,996.20 /ea	42,239,924	0.96%
					130. RO Feed Pump	24.000 ea	5,280	550,408	322,000		43,873	28,125,000	1,210,053.38 /ea	29,041,281	15,312,811	1,848,087.16 /ea	44,354,092	1.01%
		130.-140			RO Feed Pump to RO (1st Stage) Piping													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder	1.000 Is							/Is			/Is		
					Div. 46 Water and Wastewater Equipment	150.000 mgd							/mgd			/mgd		
					130.-140 RO Feed Pump to RO (1st Stage) Piping								/If			/If		
		131.			RO Feed Panel Controls													
					RO Feed Panels / Controls													
				Div. 46	Water and Wastewater Equipment													
					RO Feed Panel Controls	20 ea	640	66,716	120,000		5,318	500,000	34,601.70 /ea	692,034	376,032	53,403 /ea	1,068,066	0.02%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	640	66,716	120,000		5,318	500,000	4,613.56 /mgd	692,034	376,032	7,120.44 /mgd	1,068,066	0.02%
					RO Feed Panels / Controls RO Feed Panels / Controls	20.000 ea	640	66,716	120,000		5,318	500,000	34,601.70 /ea	692,034	376,032	53,403.29 /ea	1,068,066	0.02%
					131. RO Feed Panel Controls	20.000 EA	640	66,716	120,000		5,318	500,000	34,601.70 /EA	692,034	376,032	53,403.29 /EA	1,068,066	0.02%
		139.																
					RO Facility													
					Building													
				Div. 04	Masonry													
					Interior Staging over 10'	37142.55 sf	186	19,177	18,571				1.02 /sf	37,748	23,175	2 /sf	60,923	0.00%
					Staging to 30'	37142.55 sf	186	19,177	27,857				1.27 /sf	47,034	28,035	2 /sf	75,069	0.00%
					Rub Block	37142.55 sf	495	51,126					1.38 /sf	51,126	37,408	2 /sf	88,534	0.00%
					Mortar	2674.35 cf			20,864				7.80 /cf	20,864	10,919	12 /cf	31,783	0.00%
					Mortar	4457.1 cf			34,772				7.80 /cf	34,772	18,198	12 /cf	52,970	0.00%
					Grout Fill 10" Block Cells	22991.25 cf	6,897	712,230	146,052				37.33 /cf	858,282	597,568	63 /cf	1,455,850	0.03%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Grout Fill 10"Lintel Block	185.7 cf	56	5,753	1,180				37.33 /cf	6,932	4,827	63 /cf	11,759	0.00%
					Grout Fill 10 "Bond Beam	297.15 cf	89	9,205	1,888				37.33 /cf	11,093	7,723	63 /cf	18,816	0.00%
					Dur-O-Wall 10"	30196.95 lf			13,951				0.46 /lf	7,301		1 /lf	21,252	0.00%
					Wall Ties	42974 ea	573	59,152	5,415				1.50 /ea	64,567	46,115	3 /ea	110,682	0.00%
					Extruded Control Joints 1/2"	3602.85 lf	21	2,124	8,436				2.93 /lf	10,560	5,969	5 /lf	16,530	0.00%
					Masonry Rebar # 5	668.55 lbs	8	828	471				1.94 /lbs	1,299	852	3 /lbs	2,152	0.00%
					Masonry Rebar # 5	175238.85 lbs	2,103	217,144	123,368				1.94 /lbs	340,512	223,446	3 /lbs	563,958	0.01%
					Standard Brick	248522 ea	9,941	1,026,526	260,948				5.18 /ea	1,287,474	887,666	9 /ea	2,175,140	0.05%
					10" Block Bond Beam	1301 ea	109	11,220	29,848				31.57 /ea	41,068	23,831	50 /ea	64,899	0.00%
					10" Block Lintels	483 ea	40	4,166	11,081				31.57 /ea	15,247	8,847	50 /ea	24,094	0.00%
					10" Fire Rated 3 hr	38146 ea	3,186	328,985	272,362				15.76 /ea	601,347	383,254	26 /ea	984,601	0.02%
					Div. 04 Masonry	37,142.550 vsf	23,889	2,466,813	977,064				92.72 /vsf	3,443,877	2,315,135	155.05 /vsf	5,759,012	0.13%
				Div. 05 -15	Div 5/6/7/8/9/10/11/12/22/23													
					Div 5 - \$/SF	137563.05 sf				7,791,571			56.64 /sf	7,791,571	2,616,715	76 /sf	10,408,286	0.24%
					Div 6 - \$/SF	137563.05 sf				236,608			1.72 /sf	236,608	79,462	2 /sf	316,071	0.01%
					Div 7 - \$/SF	137563.05 sf				5,630,456			40.93 /sf	5,630,456	1,890,927	55 /sf	7,521,383	0.17%
					Div 8 - \$/SF	137563.05 sf				1,260,078			9.16 /sf	1,260,078	423,183	12 /sf	1,683,261	0.04%
					Div 9 - \$/SF	137563.05 sf				4,952,270			36.00 /sf	4,952,270	1,663,166	48 /sf	6,615,436	0.15%
					Div 10 - \$/SF	137563.05 sf				264,121			1.92 /sf	264,121	88,702	3 /sf	352,823	0.01%
					Div 11 - \$/SF	137563.05 sf				130,685			0.95 /sf	130,685	43,889	1 /sf	174,574	0.00%
					Div 12 - \$/SF	137563.05 sf				50,898			0.37 /sf	50,898	17,094	0 /sf	67,992	0.00%
					Div 22 - \$/SF	137563.05 sf				840,510			6.11 /sf	840,510	282,276	8 /sf	1,122,786	0.03%
					Div 23 - \$/SF	137563.05 sf				8,070,824			58.67 /sf	8,070,824	2,710,499	78 /sf	10,781,323	0.24%
					Div. 05 -15 Div 5/6/7/8/9/10/11/12/22/23	137,563.050 hsf				29,228,021			212.47 /hsf	29,228,021	9,815,914	283.83 /hsf	39,043,935	0.88%
					Building Building Footing	137,563.000 hsf	23,889	2,466,813	977,064	29,228,021			237.51 /hsf	32,671,898	12,131,049	325.69 /hsf	44,802,947	1.02%
			Footing	Div. 03	Concrete													
					Continuous Footing Forms > 12"	7153.2 sf	1,431	129,170	10,891				19.58 /sf	140,060	102,099	34 /sf	242,160	0.01%
					Keyway 4"	2338.5 lf	117	10,557	1,154				5.01 /lf	11,711	8,483	9 /lf	20,194	0.00%
					Waterstop 6" Bulb	2338.5 lf	234	20,948	13,554				14.75 /lf	34,502	22,746	24 /lf	57,248	0.00%
					Strip & Oil Footing Forms	7153.2 sf	36	3,204	501				0.52 /sf	3,705	2,656	1 /sf	6,361	0.00%
					Footing Rebar	51.6 tn	1,032	105,792	97,524				3,940.24 /tn	203,316	128,524	6,431 /tn	331,841	0.01%
					Pump Place Wall Footings	412.8 cy	229	24,334			1,981		63.75 /cy	26,315	18,783	109 /cy	45,098	0.00%
					4500 psi Concrete	412.8 cy			86,688				210.00 /cy	86,688	45,367	320 /cy	132,055	0.00%
					Div. 03 Concrete	7,153.200 hsf	3,078	294,004	210,311		1,981		70.78 /hsf	506,297	328,658	116.72 /hsf	834,955	0.02%
					Footing Footing	412.800 cy	3,078	294,004	210,311		1,981		1,226.49 /cy	506,297	328,658	2,022.66 /cy	834,955	0.02%
			Foundation Wall	Div. 03	Concrete													
					Keyway 4"	412.8 lf	21	1,864	204				5.01 /lf	2,067	1,497	9 /lf	3,565	0.00%
					Rented Form System 16'->	17883.15 sf	4,471	403,658	187,773				33.07 /sf	591,432	399,521	55 /sf	990,952	0.02%
					Wall Bulkhead Forms	825.45 sf	454	40,991	4,334				54.91 /sf	45,324	32,859	95 /sf	78,183	0.00%
					Waterstop 6" Bulb	825.45 lf	83	7,394	4,784				14.75 /lf	12,179	8,029	24 /lf	20,208	0.00%
					Strip & Oil Wall Forms	17883.15 sf	89	8,010	1,252				0.52 /sf	9,262	6,640	1 /sf	15,902	0.00%
					Hot Water Charge	687.75 cy			5,777				8.40 /cy	5,777	3,023	13 /cy	8,800	0.00%
					Wall Rebar	85.97 tn	1,977	202,698	162,484				4,247.79 /tn	365,182	233,498	6,964 /tn	598,680	0.01%
					Finish- Top of Wall & Curb	687.75 sf	38	3,388					4.93 /sf	3,388	2,531	9 /sf	5,919	0.00%
					Pump Place Walls	687.75 cy	963	102,266			4,950		155.89 /cy	107,216	77,154	268 /cy	184,370	0.00%
					4500 psi Concrete	687.75 cy			144,428				210.00 /cy	144,428	75,585	320 /cy	220,012	0.00%
					Grind/Patch Walls	17883.15 sf	1,431	128,133	626				7.20 /sf	128,759	96,075	13 /sf	224,834	0.01%
					Liquid Curing Compounds	17883.15 sf	54	4,806	14,083				1.06 /sf	18,889	10,961	2 /sf	29,850	0.00%
					Div. 03 Concrete	17,883.150 hsf	9,580	903,208	525,744		4,950		80.18 /hsf	1,433,902	947,373	133.16 /hsf	2,381,275	0.05%
					Foundation Wall Foundation Wall	687.750 cy	9,580	903,208	525,744		4,950		2,084.92 /cy	1,433,902	947,373	3,462.41 /cy	2,381,275	0.05%
			Slab	Div. 03	Concrete													
					S.O.G. Edge Form > 1'	11005.05 sf	3,742	337,832	16,755				32.22 /sf	354,587	260,894	56 /sf	615,481	0.01%
					S-O-G Const Joints > 1'	20634.45 sf	7,428	670,696	31,416				34.03 /sf	702,112	516,984	59 /sf	1,219,095	0.03%
					Strip & Oil SOG Form	31639.5 sf	158	14,171	2,215				0.52 /sf	16,386	11,748	1 /sf	28,134	0.00%
					SOG Rebar	963 tn	14,445	1,480,786	1,820,070				3,427.68 /tn	3,300,856	2,037,095	5,543 /tn	5,337,951	0.12%
					Mesh Support - bricks	15958 ea	32	3,272	8,210				0.72 /ea	11,482	6,693	1 /ea	18,175	0.00%
					Finish- Hard Trowel	137563.05 sf	3,164	283,360					2.06 /sf	283,360	211,741	4 /sf	495,101	0.01%
					Pump Place Slab on Grade	15269.55 cy	18,323	1,946,171			43,972		130.33 /cy	1,990,143	1,441,734	225 /cy	3,431,878	0.08%
					4500 psi Concrete	15269.55 cy			3,206,606				210.00 /cy	3,206,606	1,678,142	320 /cy	4,884,748	0.11%
					Liquid Curing Compounds	137563.05 sf	413	36,968	108,331				1.06 /sf	145,299	84,317	2 /sf	229,616	0.01%
					Seal Floors	137563.05 sf	688	61,613	28,888				0.66 /sf	90,501	61,157	1 /sf	151,659	0.00%
					Div. 03 Concrete	137,563.050 hsf	48,393	4,834,869	5,222,491		43,972		73.43 /hsf	10,101,332	6,310,506	119.30 /hsf	16,411,838	0.37%
					Slab Slab	15,269.550 cy	48,393	4,834,869	5,222,491		43,972		661.53 /cy	10,101,332	6,310,506	1,074.81 /cy	16,411,838	0.37%
					139. RO Facility	137,563.000 sf	84,940	8,498,893	6,935,611	29,228,021	50,903		325.04 /sf	44,713,428	19,717,586	468.37 /sf	64,431,015	1.46%
					RO (1st Stage)													
			RO Cell	Div. 46	Water and Wastewater Equipment													
					RO BW Membrane Filter Elements and Assembly Components - ea - Stage 1	20736 ea						11,185,620	539.43 /ea	11,185,620	5,853,873	822 /ea	17,039,494	0.39%
					RO BW Membrane Filter Elements and Assembly Components - ea - Stage 1	20736 ea	23,846	2,310,978			264,194		30,085,655	1,575.08 /ea	32,660,828	2,423 /ea	50,251,738	1.14%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	23,846	2,310,978			264,194		292,309.66 /mgd	43,846,448	23,444,783	448,608.21 /mgd	67,291,231	1.53%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					RO Cell RO Cell	20,736.000 ea	23,846	2,310,978			264,194	41,271,276	2,114.51 /ea	43,846,448	23,444,783	3,245.14 /ea	67,291,231	1.53%
			Unidentified Process Pipe		Unidentified Process Pipe													
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder - Additional Unidentified Process Piping	1 ls			31,110,199				31,110,198.93 /ls	31,110,199	16,281,185	47,391,384 /ls	47,391,384	1.07%
					Estimate Placeholder - Additional Unidentified Installation Labor/Equip.	1 ls	115,223	11,522,296			10,946,181		22,468,477.01 /ls	22,468,477	13,906,620	36,375,097 /ls	36,375,097	0.82%
					Div. 40 Process Integration (Process Piping)	150.000 mgd	115,223	11,522,296	31,110,199		10,946,181		357,191.17 /mgd	53,578,676	30,187,805	558,443.20 /mgd	83,766,481	1.90%
					Unidentified Process Pipe Unidentified Process Pipe	150.000 MGD	115,223	11,522,296	31,110,199		10,946,181		357,191.17 /MGD	53,578,676	30,187,805	558,443.20 /MGD	83,766,481	1.90%
					140. RO (1st Stage)	150.000 MGD	139,069	13,833,274	31,110,199		11,210,375	41,271,276	649,500.83 /MGD	97,425,124	53,632,588	1,007,051.41 /MGD	151,057,712	3.42%
		140.-144			RO (1st Stage) to RO (2nd Stage) Piping													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 46 Water and Wastewater Equipment	150.000 mgd							/mgd			/mgd		
					140.-144 RO (1st Stage) to RO (2nd Stage) Piping								/lf			/lf		
		140.-190			RO (1st Stage) to UVAOP Piping													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 46 Water and Wastewater Equipment	150.000 mgd							/mgd			/mgd		
					140.-190 RO (1st Stage) to UVAOP Piping								/lf			/lf		
		144.			RO (2nd Stage)													
			RO Cell		RO Cell													
				Div. 46	Water and Wastewater Equipment													
					RO BW Membrane Filter Elements and Assembly Components - ea - Stage 2	9216 ea	10,598	1,027,102			117,420	13,371,402	1,575.08 /ea	14,515,923	7,818,182	2,423 /ea	22,334,106	0.51%
					RO BW Membrane Filter Elements and Assembly Components - ea - Stage 2	9216 ea			539.43 /ea		4,971,387		539.43 /ea	4,971,387	2,601,721	822 /ea	7,573,108	0.17%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	10,598	1,027,102			117,420	18,342,789	129,915.40 /mgd	19,487,310	10,419,903	199,381.43 /mgd	29,907,214	0.68%
					RO Cell RO Cell	18,432.000 ea	10,598	1,027,102			117,420	18,342,789	1,057.25 /ea	19,487,310	10,419,903	1,622.57 /ea	29,907,214	0.68%
					144. RO (2nd Stage)	1.000 ls	10,598	1,027,102			117,420	18,342,789	19,487,310.33 /ls	19,487,310	10,419,903	29,907,213.83 /ls	29,907,214	0.68%
		144.-160			RO (2nd Stage) to RO Booster Pump Piping													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 46 Water and Wastewater Equipment	150.000 mgd							/mgd			/mgd		
					144.-160 RO (2nd Stage) to RO Booster Pump Piping								/lf			/lf		
		144.-190			RO (2nd Stage) to UVAOP Piping													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 46 Water and Wastewater Equipment	150.000 mgd							/mgd			/mgd		
					144.-190 RO (2nd Stage) to UVAOP Piping								/lf			/lf		
		148.			RO (3rd Stage)													
			RO Cell		RO Cell													
				Div. 46	Water and Wastewater Equipment													
					RO BW Membrane Filter Elements and Assembly Components - ea - Stage 3	4608 ea	5,299	513,551			58,710	6,685,701	1,575.08 /ea	7,257,962	3,909,091	2,423 /ea	11,167,053	0.25%
					RO BW Membrane Filter Elements and Assembly Components - ea - Stage 3	4608 ea	5,299	513,551			58,710	2,485,693	663.62 /ea	3,057,954	1,711,063	1,035 /ea	4,769,017	0.11%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	10,598	1,027,102			117,420	9,171,395	68,772.77 /mgd	10,315,916	5,620,154	106,240.46 /mgd	15,936,070	0.36%
					RO Cell RO Cell	9,216.000 ea	10,598	1,027,102			117,420	9,171,395	1,119.35 /ea	10,315,916	5,620,154	1,729.17 /ea	15,936,070	0.36%
					148. RO (3rd Stage)	1.000 ls	10,598	1,027,102			117,420	9,171,395	10,315,915.78 /ls	10,315,916	5,620,154	15,936,069.50 /ls	15,936,070	0.36%
		148.-170			RO (3rd Stage) to Brine to Ocean Outfall Piping													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 46 Water and Wastewater Equipment	150.000 mgd							/mgd			/mgd		
					148.-170 RO (3rd Stage) to Brine to Ocean Outfall Piping								/lf			/lf		
		148.-190			RO (3rd Stage) to UVAOP Piping													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 46 Water and Wastewater Equipment	150.000 mgd							/mgd			/mgd		
					148.-190 RO (3rd Stage) to UVAOP Piping								/lf			/lf		
		160.			RO Booster Pump													
			Booster Pump Stage 3		Booster Pump Stage 3													
				Div. 46	Water and Wastewater Equipment													
					RO Booster Pumps 15 DUTY + 1 SB	16 ea	3,840	400,297	96,000		31,908	1,800,000	145,512.78 /ea	2,328,204	1,301,620	226,864 /ea	3,629,824	0.08%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	3,840	400,297	96,000		31,908	1,800,000	15,521.36 /mgd	2,328,204	1,301,620	24,198.83 /mgd	3,629,824	0.08%
					Booster Pump Stage 3 Booster Pump Stage 3	16.000 ea	3,840	400,297	96,000		31,908	1,800,000	145,512.78 /ea	2,328,204	1,301,620	226,864.01 /ea	3,629,824	0.08%
					160. RO Booster Pump	16.000 ea	3,840	400,297	96,000		31,908	1,800,000	145,512.78 /ea	2,328,204	1,301,620	226,864.01 /ea	3,629,824	0.08%
		170.			Brine to Ocean Outfall													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 46 Water and Wastewater Equipment	150.000 mgd							/mgd			/mgd		
					170. Brine to Ocean Outfall	1.000 ls							/ls			/ls		

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
		179.			CIP Tank													
			Cip Tank		Cip Tank													
				Div. 46	Water and Wastewater Equipment													
					Polyethylene Tank, 17,000Gal	4 ea	320	31,012			3,545	1,740,000	443,639.20 /ea	1,774,557	935,381	677,484 /ea	2,709,938	0.06%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	320	31,012			3,545	1,740,000	11,830.38 /mgd	1,774,557	935,381	18,066.25 /mgd	2,709,938	0.06%
					Cip Tank Cip Tank	4.000 ea	320	31,012			3,545	1,740,000	443,639.20 /ea	1,774,557	935,381	677,484.40 /ea	2,709,938	0.06%
					179. CIP Tank	4.000 ea	320	31,012			3,545	1,740,000	443,639.20 /ea	1,774,557	935,381	677,484.40 /ea	2,709,938	0.06%
		180.			RO Flush Tank													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder	1.000 Is							/Is			/Is		
					Polyethylene Tank, 60,000Gal	1 ea	80	7,753			886	435,000	443,639.20 /ea	443,639	233,845	677,484 /ea	677,484	0.02%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	80	7,753			886	435,000	2,957.60 /mgd	443,639	233,845	4,516.56 /mgd	677,484	0.02%
					* unassigned *		80	7,753			886	435,000		443,639	233,845		677,484	0.02%
					180. RO Flush Tank	1.000 ea	80	7,753			886	435,000	443,639.20 /ea	443,639	233,845	677,484.39 /ea	677,484	0.02%
		180.-190			RO Flush Tank to UV/AOP Piping													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					RO Flush Pump 1 DUTY + 1 SB	2 ea	480	50,037	12,000		3,988	675,000	370,512.78 /ea	741,026	398,205	569,615 /ea	1,139,231	0.03%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	480	50,037	12,000		3,988	675,000	4,940.17 /mgd	741,026	398,205	7,594.87 /mgd	1,139,231	0.03%
					* unassigned *		480	50,037	12,000		3,988	675,000		741,026	398,205		1,139,231	0.03%
					180.-190 RO Flush Tank to UV/AOP Piping	2.000 If	480	50,037	12,000		3,988	675,000	370,512.78 /If	741,026	398,205	569,615.31 /If	1,139,231	0.03%
					004. - RO Reverse Osmosis Related	150.000 MGD	306,467	30,477,002	43,601,404	41,393,119	11,628,420	115,222,959	1,615,486.03 /MGD	242,322,904	125,233,911	2,450,378.77 /MGD	367,556,815	8.33%
	005. - UV AOP				UV AOP System													
		190.			UV/AOP													
			Building		Building													
				Div. 10	Specialties													
					Estimate Placeholder - Canopy	41478.15 sf				6,636,504			160.00 /sf	6,636,504	2,228,798	214 /sf	8,865,302	0.20%
					Div. 10 Specialties	41,478.150 hsf				6,636,504			160.00 /hsf	6,636,504	2,228,798	213.73 /hsf	8,865,302	0.20%
					Building Building	41,478.150 hsf				6,636,504			160.00 /hsf	6,636,504	2,228,798	213.73 /hsf	8,865,302	0.20%
					Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	4009.8 sf	802	72,407	6,105				19.58 /sf	78,512	57,233	34 /sf	135,745	0.00%
					Keyway 4"	1336.65 lf	67	6,034	660				5.01 /lf	6,694	4,849	9 /lf	11,542	0.00%
					Waterstop 6" Bulb	1336.65 lf	134	11,973	7,747				14.75 /lf	19,721	13,001	24 /lf	32,722	0.00%
					Strip & Oil Footing Forms	4009.8 sf	20	1,796	281				0.52 /sf	2,077	1,489	1 /sf	3,565	0.00%
					Footing Rebar	8.25 tn	165	16,914	15,593				3,940.35 /tn	32,508	20,549	6,431 /tn	53,057	0.00%
					Pump Place Wall Footings	223.2 cy	124	13,157			1,071		63.75 /cy	14,228	10,156	109 /cy	24,384	0.00%
					4500 psi Concrete	223.2 cy			46,872				210.00 /cy	46,872	24,530	320 /cy	71,402	0.00%
					Div. 03 Concrete	4,009.800 hsf	1,311	122,283	77,258		1,071		50.03 /hsf	200,612	131,807	82.90 /hsf	332,418	0.01%
					Footing Footing	223.200 cy	1,311	122,283	77,258		1,071		898.80 /cy	200,612	131,807	1,489.33 /cy	332,418	0.01%
					Foundation Wall													
				Div. 03	Concrete													
					Keyway 4"	200.85 lf	10	907	99				5.01 /lf	1,006	729	9 /lf	1,734	0.00%
					Rented Form System 16'->	8034.9 sf	2,009	181,364	84,366				33.07 /sf	265,730	179,505	55 /sf	445,235	0.01%
					Wall Bulkhead Forms	401.7 sf	221	19,948	2,109				54.91 /sf	22,057	15,991	95 /sf	38,048	0.00%
					Waterstop 6" Bulb	401.7 lf	40	3,598	2,328				14.75 /lf	5,927	3,907	24 /lf	9,834	0.00%
					Strip & Oil Wall Forms	8034.9 sf	40	3,599	562				0.52 /sf	4,161	2,983	1 /sf	7,145	0.00%
					Hot Water Charge	297.6 cy			2,500				8.40 /cy	2,500	1,308	13 /cy	3,808	0.00%
					Wall Rebar	26.25 tn	604	61,892	49,613				4,247.81 /tn	111,505	71,296	6,964 /tn	182,801	0.00%
					Finish- Top of Wall & Curb	334.8 sf	18	1,649					4.93 /sf	1,649	1,232	9 /sf	2,881	0.00%
					Pump Place Walls	297.6 cy	417	44,252			2,142		155.89 /cy	46,394	33,386	268 /cy	79,780	0.00%
					4500 psi Concrete	297.6 cy			62,496				210.00 /cy	62,496	32,707	320 /cy	95,203	0.00%
					Grind/Patch Walls	8034.9 sf	643	57,570	281				7.20 /sf	57,852	43,166	13 /sf	101,018	0.00%
					Liquid Curing Compounds	8034.9 sf	24	2,159	6,327				1.06 /sf	8,487	4,925	2 /sf	13,412	0.00%
					Div. 03 Concrete	8,034.900 hsf	4,026	376,938	210,683		2,142		73.40 /hsf	589,763	391,135	122.08 /hsf	980,898	0.02%
					Foundation Wall Foundation Wall	297.600 cy	4,026	376,938	210,683		2,142		1,981.73 /cy	589,763	391,135	3,296.03 /cy	980,898	0.02%
					Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	3362.1 sf	1,143	103,209	5,119				32.22 /sf	108,328	79,704	56 /sf	188,033	0.00%
					S-O-G Const Joints > 1'	6277.8 sf	2,260	204,052	9,558				34.03 /sf	213,610	157,286	59 /sf	370,896	0.01%
					Strip & Oil SOG Form	9639.75 sf	48	4,318	675				0.52 /sf	4,992	3,579	1 /sf	8,572	0.00%
					SOG Rebar	302.25 tn	4,534	464,764	571,253				3,427.68 /tn	1,036,017	639,369	5,543 /tn	1,675,386	0.04%
					Mesh Support - bricks	4837 ea	10	992	2,489				0.72 /ea	3,480	2,029	1 /ea	5,509	0.00%
					Finish- Hard Trowel	41851.35 sf	963	86,208					2.06 /sf	86,208	64,419	4 /sf	150,627	0.00%
					Pump Place Slab on Grade	4650.15 cy	5,580	592,682			13,391		130.33 /cy	606,073	439,062	225 /cy	1,045,135	0.02%
					4500 psi Concrete	4650.15 cy			976,532				210.00 /cy	976,532	511,057	320 /cy	1,487,589	0.03%
					Liquid Curing Compounds	41851.35 sf	126	11,247	32,958				1.06 /sf	44,205	25,652	2 /sf	69,857	0.00%
					Seal Floors	41851.35 sf	209	18,745	8,789				0.86 /sf	27,534	18,606	1 /sf	46,140	0.00%
					Div. 03 Concrete	41,851.350 hsf	14,872	1,486,216	1,607,372		13,391		74.24 /hsf	3,106,979	1,940,764	120.61 /hsf	5,047,743	0.11%
					Slab Slab	4,650.150 cy	14,872	1,486,216	1,607,372		13,391		668.15 /cy	3,106,979	1,940,764	1,085.50 /cy	5,047,743	0.11%
			Unidentified Process Pipe		Unidentified Process Pipe													
				Div. 40	Process Integration (Process Piping)													

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Estimate Placeholder - Additional Unidentified Process Piping	1 ls			8,990,880				8,990,880.39 /ls	8,990,880	4,705,280	13,696,160 /ls	13,696,160	0.31%
					Estimate Placeholder - Additional Unidentified Installation Labor/Equip.	1 ls	61,624	6,162,445			3,463,154		9,625,598.56 /ls	9,625,599	6,174,300	15,799,898 /ls	15,799,898	0.36%
					Div. 40 Process Integration (Process Piping)	150.000 mgd	61,624	6,162,445	8,990,880		3,463,154		124,109.86 /mgd	18,616,479	10,879,579	196,640.39 /mgd	29,496,058	0.67%
					Unidentified Process Pipe Unidentified Process Pipe	150.000 MGD	61,624	6,162,445	8,990,880		3,463,154		124,109.86 /MGD	18,616,479	10,879,579	196,640.39 /MGD	29,496,058	0.67%
			UV AOP		UV AOP													
				Div. 46	Water and Wastewater Equipment													
					Butterfly Valves MJ 48" Epoxy Coated w/ valve box & Elec Oper	20 ea	840	87,565	120,000			960,000	58,378.25 /ea	1,167,565	629,193	89,838 /ea	1,796,758	0.04%
					Magnetic Flow Meter, Inline - 48" w/ transmitter	10 ea	520	58,020	280,000			622,890	96,091.00 /ea	960,910	514,531	147,544 /ea	1,475,441	0.03%
					UV AOP Reactors (7 duty, 1 standby) 16.43 MGD per train, 1600 mj/cm	10 ea	6,400	667,162	160,000		53,179	31,716,667	3,259,700.75 /ea	32,597,007	17,197,922	4,979,493 /ea	49,794,929	1.13%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	7,760	812,747	560,000		53,179	33,299,557	231,503.22 /mgd	34,725,482	18,341,646	353,780.86 /mgd	53,067,128	1.20%
					UV AOP UV AOP	150.000 MGD	7,760	812,747	560,000		53,179	33,299,557	231,503.22 /MGD	34,725,482	18,341,646	353,780.86 /MGD	53,067,128	1.20%
					190. UV/AOP	150.000 MGD	89,594	8,960,627	11,446,193	6,636,504	3,532,937	33,299,557	425,838.79 /MGD	63,875,819	33,913,729	651,930.32 /MGD	97,789,548	2.22%
		190.-250			UV/AOP to Free Chlorine Piping													
				UV AOP	UV AOP													
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					UV AOP UV AOP	150.000 MGD							/MGD			/MGD		
					190.-250 UV/AOP to Free Chlorine Piping								/lf			/lf		
					005. - UV AOP UV AOP System	150.000 MGD	89,594	8,960,627	11,446,193	6,636,504	3,532,937	33,299,557	425,838.79 /MGD	63,875,819	33,913,729	651,930.32 /MGD	97,789,548	2.22%
006. - Chemical					Chemical Storage and Feed Systems													
		071.			Chemical Buildings Process E&I & Unidentified Piping													
					Unidentified Process Pipe													
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder - Additional Unidentified Process Piping	1 ls			999,574				999,573.75 /ls	999,574	523,116	1,522,690 /ls	1,522,690	0.03%
					Estimate Placeholder - Additional Unidentified Installation Labor/Equip.	1 ls	4,998	499,788			129,574		629,361.98 /ls	629,362	420,814	1,050,176 /ls	1,050,176	0.02%
					Div. 40 Process Integration (Process Piping)	150.000 mgd	4,998	499,788	999,574		129,574		10,859.57 /mgd	1,628,936	943,930	17,152.44 /mgd	2,572,866	0.06%
					Unidentified Process Pipe Unidentified Process Pipe	150.000 MGD	4,998	499,788	999,574		129,574		10,859.57 /MGD	1,628,936	943,930	17,152.44 /MGD	2,572,866	0.06%
					071. Chemical Buildings Process E&I & Unidentified Piping	150.000 MGD	4,998	499,788	999,574		129,574		10,859.57 /MGD	1,628,936	943,930	17,152.44 /MGD	2,572,866	0.06%
		072.			Ammonium Sulfate													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Polyethylene Tank, 12,700Gal	6 ea	480	46,517			5,318	552,450	100,714.20 /ea	604,285	326,275	155,093 /ea	930,560	0.02%
					Chemical Feeding Units	2 ea	120	11,629			1,329	150,000	81,479.40 /ea	162,959	87,790	125,374 /ea	250,749	0.01%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	600	58,147			6,647	702,450	5,114.96 /mgd	767,244	414,065	7,875.39 /mgd	1,181,309	0.03%
					* unassigned *		600	58,147			6,647	702,450		767,244	414,065		1,181,309	0.03%
					072. Ammonium Sulfate	8.000 ea	600	58,147			6,647	702,450	95,905.50 /ea	767,244	414,065	147,663.57 /ea	1,181,309	0.03%
		072.-064			Ammonium Sulfate to MF Membranes Piping													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					072.-064 Ammonium Sulfate to MF Membranes Piping								/lf			/lf		
		120.			Sulfuric Acid													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Polyethylene Tank, 14,000Gal	4 ea	320	31,012			3,545	406,000	110,139.20 /ea	440,557	237,246	169,451 /ea	677,803	0.02%
					Chemical Feeding Units	2 ea	120	11,629			1,329	150,000	81,479.40 /ea	162,959	87,790	125,374 /ea	250,749	0.01%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	440	42,641			4,875	556,000	4,023.44 /mgd	603,516	325,036	6,190.35 /mgd	928,552	0.02%
					* unassigned *		440	42,641			4,875	556,000		603,516	325,036		928,552	0.02%
					120. Sulfuric Acid	6.000 ea	440	42,641			4,875	556,000	100,585.93 /ea	603,516	325,036	154,758.63 /ea	928,552	0.02%
		120.-110			Sulfuric Acid to Cartridge Filter Piping													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					120.-110 Sulfuric Acid to Cartridge Filter Piping								/lf			/lf		
		122.			Antiscalant													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Polyethylene Tank, 13,500Gal	2 ea	160	15,506			1,773	195,750	106,514.20 /ea	213,028	114,829	163,929 /ea	327,857	0.01%
					Chemical Feeding Units	2 ea	120	11,629			1,329	150,000	81,479.40 /ea	162,959	87,790	125,374 /ea	250,749	0.01%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	280	27,135			3,102	345,750	2,506.58 /mgd	375,987	202,619	3,857.37 /mgd	578,606	0.01%
					* unassigned *		280	27,135			3,102	345,750		375,987	202,619		578,606	0.01%
					122. Antiscalant	4.000 ea	280	27,135			3,102	345,750	93,996.80 /ea	375,987	202,619	144,651.51 /ea	578,606	0.01%
		122.-130			Antiscalant to RO Feed Pump Piping													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					122.-130 Antiscalant to RO Feed Pump Piping								/lf			/lf		

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
		123.			Caustic (NaOH)													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder	1.000	Is						/Is			/Is		
					Polyethylene Tank, 15,000Gal	11	ea	880	85,282		9,750	1,196,250	117,389.20 /ea	1,291,281	694,164	180,495 /ea	1,985,445	0.05%
					Chemical Feeding Units	3	ea	180	17,444		1,994	225,000	81,479.40 /ea	244,438	131,685	125,374 /ea	376,123	0.01%
					Div. 46 Water and Wastewater Equipment	150.000	mgd	1,060	102,726		11,744	1,421,250	10,238.13 /mgd	1,535,719	825,849	15,743.79 /mgd	2,361,568	0.05%
					* unassigned *			1,060	102,726		11,744	1,421,250		1,535,719	825,849		2,361,568	0.05%
					123. Caustic (NaOH)	14.000	ea	1,060	102,726		11,744	1,421,250	109,694.24 /ea	1,535,719	825,849	168,683.42 /ea	2,361,568	0.05%
		128.			Citric Acid													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Polyethylene Tank, 15,000Gal	3	ea	240	23,259		2,659	326,250	117,389.20 /ea	352,168	189,317	180,495 /ea	541,485	0.01%
					Chemical Feeding Units	3	ea	180	17,444		1,994	225,000	81,479.40 /ea	244,438	131,685	125,374 /ea	376,123	0.01%
					Div. 46 Water and Wastewater Equipment	150.000	mgd	420	40,703		4,653	551,250	3,977.37 /mgd	596,606	321,002	6,117.39 /mgd	917,608	0.02%
					* unassigned *			420	40,703		4,653	551,250		596,606	321,002		917,608	0.02%
					128. Citric Acid	6.000	ea	420	40,703		4,653	551,250	99,434.30 /ea	596,606	321,002	152,934.67 /ea	917,608	0.02%
		199.			Chemical Building													
			Building		Building													
				Div. 04	Masonry													
					Interior Staging over 10'	21036.45	sf	105	10,861	10,518			1.02 /sf	21,379	13,126	2 /sf	34,505	0.00%
					Staging to 30'	21036.45	sf	105	10,861	15,777			1.27 /sf	26,639	15,878	2 /sf	42,517	0.00%
					Rub Block	21036.45	sf	280	28,956				1.38 /sf	28,956	21,187	2 /sf	50,143	0.00%
					Mortar	1514.55	cf			11,816			7.80 /cf	11,816	6,184	12 /cf	17,999	0.00%
					Mortar	2524.35	cf			19,694			7.80 /cf	19,694	10,306	12 /cf	30,000	0.00%
					Grout Fill 10" Block Cells	13021.65	cf	3,906	403,389	82,720			37.33 /cf	486,109	338,447	63 /cf	824,556	0.02%
					Grout Fill 10"Lintel Block	105.15	cf	32	3,257	668			37.33 /cf	3,925	2,733	63 /cf	6,658	0.00%
					Grout Fill 10"Bond Beam	168.3	cf	50	5,214	1,069			37.33 /cf	6,283	4,374	63 /cf	10,657	0.00%
					Dur-O-Wall 10"	17102.7	lf			7,901			0.46 /lf	7,901	4,135	1 /lf	12,037	0.00%
					Wall Ties	24340	ea	324	33,503	3,067			1.50 /ea	36,570	26,119	3 /ea	62,689	0.00%
					Extruded Control Joints 1/2"	2040.45	lf	12	1,203	4,778			2.93 /lf	5,981	3,381	5 /lf	9,361	0.00%
					Masonry Rebar # 5	99250.35	lbs	1,191	122,984	69,872			1.94 /lbs	192,857	126,554	3 /lbs	319,410	0.01%
					Masonry Rebar # 5	378.75	lbs	5	469	267			1.94 /lbs	736	483	3 /lbs	1,219	0.00%
					Standard Brick	140756	ea	5,630	581,396	147,794			5.18 /ea	729,190	502,750	9 /ea	1,231,939	0.03%
					10" Block Bond Beam	737	ea	62	6,356	16,909			31.57 /ea	23,265	13,500	50 /ea	36,764	0.00%
					10" Block Lintels	274	ea	23	2,363	6,286			31.57 /ea	8,649	5,019	50 /ea	13,668	0.00%
					10" Fire Rated 3 hr	21605	ea	1,804	186,329	154,260			15.76 /ea	340,589	217,066	26 /ea	557,655	0.01%
					Div. 04 Masonry	21,036.450	vsf	13,530	1,397,142	553,395			92.72 /vsf	1,950,538	1,311,241	155.05 /vsf	3,261,779	0.07%
				Div. 05 -15	Div 5/6/7/8/9/10/11/12/22/23													
					Div 5 - \$/SF	32869.5	sf			1,861,728			56.64 /sf	1,861,728	625,241	76 /sf	2,486,970	0.06%
					Div 6 - \$/SF	32869.5	sf			56,536			1.72 /sf	56,536	18,987	2 /sf	75,522	0.00%
					Div 7 - \$/SF	32869.5	sf			1,345,349			40.93 /sf	1,345,349	451,821	55 /sf	1,797,169	0.04%
					Div 8 - \$/SF	32869.5	sf			301,085			9.16 /sf	301,085	101,116	12 /sf	402,201	0.01%
					Div 9 - \$/SF	32869.5	sf			1,183,302			36.00 /sf	1,183,302	397,399	48 /sf	1,580,701	0.04%
					Div 10 - \$/SF	32869.5	sf			63,109			1.92 /sf	63,109	21,195	3 /sf	84,304	0.00%
					Div 11 - \$/SF	32869.5	sf			31,226			0.95 /sf	31,226	10,487	1 /sf	41,713	0.00%
					Div 12 - \$/SF	32869.5	sf			12,162			0.37 /sf	12,162	4,084	0 /sf	16,246	0.00%
					Div 22 - \$/SF	32869.5	sf			200,833			6.11 /sf	200,833	67,447	8 /sf	268,280	0.01%
					Div 23 - \$/SF	32869.5	sf			1,928,454			58.67 /sf	1,928,454	647,650	78 /sf	2,576,104	0.06%
					Div. 05 -15 Div 5/6/7/8/9/10/11/12/22/23	32,869.500	hsf			6,983,783			212.47 /hsf	6,983,783	2,345,428	283.83 /hsf	9,329,210	0.21%
					Building Building	32,869.500	hsf	13,530	1,397,142	553,395			271.81 /hsf	8,934,320	3,656,669	383.06 /hsf	12,590,989	0.29%
			Footing		Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	3999.45	sf	800	72,220	6,089			19.58 /sf	78,310	57,085	34 /sf	135,395	0.00%
					Keyway 4"	1333.2	lf	67	6,019	658			5.01 /lf	6,677	4,836	9 /lf	11,513	0.00%
					Waterstop 6" Bulb	1333.2	lf	133	11,943	7,727			14.75 /lf	19,670	12,968	24 /lf	32,637	0.00%
					Strip & Oil Footing Forms	3999.45	sf	20	1,791	280			0.52 /sf	2,071	1,485	1 /sf	3,556	0.00%
					Footing Rebar	8.25	tn	165	16,914	15,593			3,940.35 /tn	32,508	20,549	6,431 /tn	53,057	0.00%
					Pump Place Wall Footings	222.6	cy	124	13,122		1,068		63.75 /cy	14,190	10,128	109 /cy	24,319	0.00%
					4500 psi Concrete	222.6	cy		46,746				210.00 /cy	46,746	24,464	320 /cy	71,210	0.00%
					Div. 03 Concrete	3,999.450	hsf	1,308	122,009	77,094			50.05 /hsf	200,171	131,516	82.93 /hsf	331,687	0.01%
					Footing Footing	222.600	cy	1,308	122,009	77,094			899.24 /cy	200,171	131,516	1,490.06 /cy	331,687	0.01%
			Foundation Wall		Foundation Wall													
				Div. 03	Concrete													
					Keyway 4"	200.4	lf	10	905	99			5.01 /lf	1,004	727	9 /lf	1,731	0.00%
					Rented Form System 16'->	8014.05	sf	2,004	180,893	84,148			33.07 /sf	265,041	179,039	55 /sf	444,080	0.01%
					Wall Bulkhead Forms	400.65	sf	220	19,896	2,103			54.91 /sf	21,999	15,949	95 /sf	37,948	0.00%
					Waterstop 6" Bulb	400.65	lf	40	3,589	2,322			14.75 /lf	5,911	3,897	24 /lf	9,808	0.00%
					Strip & Oil Wall Forms	8014.05	sf	40	3,589	561			0.52 /sf	4,150	2,976	1 /sf	7,126	0.00%
					Hot Water Charge	296.7	cy		2,492				8.40 /cy	2,492	1,304	13 /cy	3,797	0.00%
					Wall Rebar	26.25	tn	604	61,892	49,613			4,247.81 /tn	111,505	71,296	6,964 /tn	182,801	0.00%
					Finish- Top of Wall & Curb	334.05	sf	18	1,645				4.93 /sf	1,645	1,230	9 /sf	2,875	0.00%
					Pump Place Walls	296.7	cy	415	44,118		2,135		155.89 /cy	46,254	33,285	268 /cy	79,538	0.00%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					4500 psi Concrete	296.7 cy			62,307				210.00 /cy	62,307	32,608	320 /cy	94,915	0.00%
					Grind/Patch Walls	8014.05 sf	641	57,421	280				7.20 /sf	57,701	43,054	13 /sf	100,756	0.00%
					Liquid Curing Compounds	8014.05 sf	24	2,154	6,311				1.06 /sf	8,465	4,912	2 /sf	13,377	0.00%
					Div. 03 Concrete	8,014.050 hsf	4,017	376,102	210,237		2,135		73.43 /hsf	588,474	390,276	122.13 /hsf	978,751	0.02%
					Foundation Wall Foundation Wall	296.700 cy	4,017	376,102	210,237		2,135		1,983.40 /cy	588,474	390,276	3,298.79 /cy	978,751	0.02%
			Slab		Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	2640.45 sf	898	81,056	4,020				32.22 /sf	85,076	62,597	56 /sf	147,673	0.00%
					S-O-G Const Joints > 1'	4930.5 sf	1,775	160,259	7,507				34.03 /sf	167,766	123,531	59 /sf	291,297	0.01%
					Strip & Oil SOG Form	7570.95 sf	38	3,391	530				0.52 /sf	3,921	2,811	1 /sf	6,732	0.00%
					SOG Rebar	237.3 tn	3,560	364,891	448,497				3,427.68 /tn	813,388	501,976	5,543 /tn	1,315,364	0.03%
					Mesh Support - bricks	3798.3 ea	8	779	1,954				0.72 /ea	2,733	1,593	1 /ea	4,326	0.00%
					Finish- Hard Trowel	32869.5 sf	756	67,706					2.06 /sf	67,706	50,594	4 /sf	118,300	0.00%
					Pump Place Slab on Grade	3652.2 cy	4,383	465,489			10,517		130.33 /cy	476,006	344,837	225 /cy	820,843	0.02%
					4500 psi Concrete	3652.2 cy			766,962				210.00 /cy	766,962	401,381	320 /cy	1,168,343	0.03%
					Liquid Curing Compounds	32869.5 sf	99	8,833	25,885				1.06 /sf	34,718	20,147	2 /sf	54,865	0.00%
					Seal Floors	32869.5 sf	164	14,722	6,903				0.66 /sf	21,625	14,613	1 /sf	36,238	0.00%
					Div. 03 Concrete	32,869.500 hsf	11,679	1,167,127	1,262,257		10,517		74.23 /hsf	2,439,079	1,524,079	120.60 /hsf	3,963,981	0.09%
					Slab Slab	3,652.200 cy	11,679	1,167,127	1,262,257		10,517		668.06 /cy	2,439,902	1,524,079	1,085.37 /cy	3,963,981	0.09%
			Unidentified		Unidentified													
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Estimate Placeholder - Additional Unidentified Process Piping	1.000 ls							/ls			/ls		
					Estimate Placeholder - Additional Unidentified Installation Labor/Equip.	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					Unidentified Unidentified	1.000 ls							/ls			/ls		
		239.			199. Chemical Building	32,870.000 sf	30,535	3,062,381	2,102,984	6,983,783	13,721		370.03 /sf	12,162,868	5,702,540	543.52 /sf	17,865,408	0.40%
					Chlorine Building													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
			Building		Building													
				Div. 04	Masonry													
					Interior Staging over 10'	17311.35 sf	87	8,938	8,656				1.02 /sf	17,594	10,802	2 /sf	28,395	0.00%
					Staging to 30'	17311.35 sf	87	8,938	12,984				1.27 /sf	21,921	13,066	2 /sf	34,988	0.00%
					Rub Block	17311.35 sf	231	23,829					1.38 /sf	23,829	17,435	2 /sf	41,264	0.00%
					Mortar	1246.5 cf			9,725				7.80 /cf	9,725	5,089	12 /cf	14,814	0.00%
					Mortar	2077.35 cf			16,206				7.80 /cf	16,206	8,481	12 /cf	24,688	0.00%
					Grout Fill 10" Block Cells	10715.7 cf	3,215	331,954	68,071				37.33 /cf	400,026	278,513	63 /cf	678,539	0.02%
					Grout Fill 10"Lintel Block	86.55 cf	26	2,681	550				37.33 /cf	3,231	2,250	63 /cf	5,480	0.00%
					Grout Fill 10 "Bond Beam	138.45 cf	42	4,289	880				37.33 /cf	5,168	3,599	63 /cf	8,767	0.00%
					Dur-O-Wall 10"	14074.05 lf			6,502				0.46 /lf	6,502	3,403	1 /lf	9,905	0.00%
					Wall Ties	20030 ea	267	27,571	2,524				1.50 /ea	30,094	21,494	3 /ea	51,589	0.00%
					Extruded Control Joints 1/2"	1679.1 lf	10	990	3,932				2.93 /lf	4,922	2,782	5 /lf	7,704	0.00%
					Masonry Rebar # 5	311.55 lbs	4	386	219				1.94 /lbs	605	397	3 /lbs	1,003	0.00%
					Masonry Rebar # 5	81674.7 lbs	980	101,206	57,499				1.94 /lbs	158,705	104,143	3 /lbs	262,848	0.01%
					Standard Brick	115830 ea	4,633	478,438	121,622				5.18 /ea	600,060	413,719	9 /ea	1,013,779	0.02%
					10" Block Bond Beam	606 ea	51	5,226	13,903				31.57 /ea	19,130	11,100	50 /ea	30,230	0.00%
					10" Block Lintels	225 ea	19	1,940	5,162				31.57 /ea	7,103	4,121	50 /ea	11,224	0.00%
					10" Fire Rated 3 hr	17779 ea	1,485	153,332	126,942				15.76 /ea	280,275	178,626	26 /ea	458,901	0.01%
					Div. 04 Masonry	17,311.350 vsf	11,134	1,149,719	455,376				92.72 /vsf	1,605,095	1,079,021	155.05 /vsf	2,684,116	0.06%
				Div. 05 -15	Div 5/6/7/8/9/10/11/12/22/23													
					Div 5 - \$/SF	25132.2 sf				1,423,488			56.64 /sf	1,423,488	478,063	76 /sf	1,901,551	0.04%
					Div 6 - \$/SF	25132.2 sf				43,227			1.72 /sf	43,227	14,517	2 /sf	57,745	0.00%
					Div 7 - \$/SF	25132.2 sf				1,028,661			40.93 /sf	1,028,661	345,465	55 /sf	1,374,126	0.03%
					Div 8 - \$/SF	25132.2 sf				230,211			9.16 /sf	230,211	77,314	12 /sf	307,525	0.01%
					Div 9 - \$/SF	25132.2 sf				904,759			36.00 /sf	904,759	303,854	48 /sf	1,208,613	0.03%
					Div 10 - \$/SF	25132.2 sf				48,254			1.92 /sf	48,254	16,206	3 /sf	64,459	0.00%
					Div 11 - \$/SF	25132.2 sf				23,876			0.95 /sf	23,876	8,018	1 /sf	31,894	0.00%
					Div 12 - \$/SF	25132.2 sf				9,299			0.37 /sf	9,299	3,123	0 /sf	12,422	0.00%
					Div 22 - \$/SF	25132.2 sf				153,558			6.11 /sf	153,558	51,571	8 /sf	205,128	0.00%
					Div 23 - \$/SF	25132.2 sf				1,474,506			58.67 /sf	1,474,506	495,197	78 /sf	1,969,703	0.04%
					Div. 05 -15 Div 5/6/7/8/9/10/11/12/22/23	25,132.200 hsf				5,339,839			212.47 /hsf	5,339,839	1,793,327	283.83 /hsf	7,133,165	0.16%
					Building Building	25,132.000 hsf	11,134	1,149,719	455,376	5,339,839			276.34 /hsf	6,944,933	2,872,348	390.63 /hsf	9,817,281	0.22%
			Footing		Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	3291 sf	658	59,428	5,011				19.58 /sf	64,438	46,973	34 /sf	111,411	0.00%
					Keyway 4"	1097.1 lf	55	4,953	541				5.01 /lf	5,494	3,980	9 /lf	9,474	0.00%
					Waterstop 6" Bulb	1097.1 lf	110	9,828	6,359				14.75 /lf	16,186	10,671	24 /lf	26,858	0.00%
					Strip & Oil Footing Forms	3291 sf	16	1,474	230				0.52 /sf	1,704	1,222	1 /sf	2,926	0.00%
					Footing Rebar	6.75 tn	135	13,839	12,758				3,940.37 /tn	26,598	16,813	6,431 /tn	43,411	0.00%
					Pump Place Wall Footings	183.15 cy	102	10,796			879		63.75 /cy	11,675	8,333	109 /cy	20,009	0.00%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					4500 psi Concrete	183.15 cy			38,462				210.00 /cy	38,462	20,128	320 /cy	58,590	0.00%
					Div. 03 Concrete	3,291.000 hsf	1,076	100,317	63,361		879		50.00 /hsf	164,557	108,121	82.86 /hsf	272,679	0.01%
					Footing Footing	183.150 cy	1,076	100,317	63,361		879		898.49 /cy	164,557	108,121	1,488.83 /cy	272,679	0.01%
			Foundation Wall		Foundation Wall													
				Div. 03	Concrete													
					Keyway 4"	164.85 lf	8	744	81				5.01 /lf	826	598	9 /lf	1,424	0.00%
					Rented Form System 16'->	6594.75 sf	1,649	148,857	69,245				33.07 /sf	218,102	147,331	55 /sf	365,432	0.01%
					Wall Bulkhead Forms	329.7 sf	181	16,372	1,731				54.91 /sf	18,103	13,125	95 /sf	31,228	0.00%
					Waterstop 6" Bulb	329.7 lf	33	2,953	1,911				14.75 /lf	4,864	3,207	24 /lf	8,071	0.00%
					Strip & Oil Wall Forms	6594.75 sf	33	2,954	462				0.52 /sf	3,415	2,449	1 /sf	5,864	0.00%
					Hot Water Charge	244.35 cy			2,053				8.40 /cy	2,053	1,074	13 /cy	3,127	0.00%
					Wall Rebar	21.45 tn	493	50,574	40,541				4,247.82 /tn	91,116	58,259	6,964 /tn	149,375	0.00%
					Finish- Top of Wall & Curb	274.8 sf	15	1,354					4.93 /sf	1,354	1,011	9 /sf	2,365	0.00%
					Pump Place Walls	244.35 cy	342	36,334			1,759		155.89 /cy	38,093	27,412	268 /cy	65,505	0.00%
					4500 psi Concrete	244.35 cy			51,314				210.00 /cy	51,314	26,854	320 /cy	78,168	0.00%
					Grind/Patch Walls	6594.75 sf	528	47,252	231				7.20 /sf	47,482	35,429	13 /sf	82,912	0.00%
					Liquid Curing Compounds	6594.75 sf	20	1,772	5,193				1.06 /sf	6,966	4,042	2 /sf	11,008	0.00%
					Div. 03 Concrete	6,594.750 hsf	3,302	309,166	172,761		1,759		73.34 /hsf	483,686	320,792	121.99 /hsf	804,478	0.02%
					Foundation Wall Foundation Wall	244.350 cy	3,302	309,166	172,761		1,759		1,979.48 /cy	483,686	320,792	3,292.32 /cy	804,478	0.02%
			Slab		Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	2041.95 sf	694	62,684	3,109				32.22 /sf	65,792	48,408	56 /sf	114,200	0.00%
					S-O-G Const Joints > 1'	3812.85 sf	1,373	123,932	5,805				34.03 /sf	129,737	95,529	59 /sf	225,265	0.01%
					Strip & Oil SOG Form	5854.95 sf	29	2,622	410				0.52 /sf	3,032	2,174	1 /sf	5,206	0.00%
					SOG Rebar	183.6 tn	2,754	282,318	347,004				3,427.68 /tn	629,322	388,381	5,543 /tn	1,017,703	0.02%
					Mesh Support - bricks	2938 ea	6	602	1,512				0.72 /ea	2,114	1,232	1 /ea	3,346	0.00%
					Finish- Hard Trowel	25419.15 sf	585	52,360					2.06 /sf	52,360	39,126	4 /sf	91,486	0.00%
					Pump Place Slab on Grade	2824.35 cy	3,389	359,976			8,133		130.33 /cy	368,109	266,672	225 /cy	634,781	0.01%
					4500 psi Concrete	2824.35 cy			593,114				210.00 /cy	593,114	310,400	320 /cy	903,513	0.02%
					Liquid Curing Compounds	25419.15 sf	76	6,831	20,018				1.06 /sf	26,849	15,580	2 /sf	42,429	0.00%
					Seal Floors	25419.15 sf	127	11,385	5,338				0.66 /sf	16,723	11,301	1 /sf	28,024	0.00%
					Div. 03 Concrete	25,419.150 hsf	9,033	902,710	976,309		8,133		74.24 /hsf	1,887,152	1,178,802	120.62 /hsf	3,065,954	0.07%
					Slab Slab	2,824.350 cy	9,033	902,710	976,309		8,133		668.17 /cy	1,887,152	1,178,802	1,085.54 /cy	3,065,954	0.07%
					239. Chlorine Building	25,132.000 sf	24,545	2,461,912	1,667,807	5,339,839	10,771		377.22 /sf	9,480,329	4,480,063	555.48 /sf	13,960,392	0.32%
		240.			Sodium Hypochlorite													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Polyethylene Tank, 14,400Gal	11 ea	880	85,282			9,750	1,148,400	113,039.20 /ea	1,243,431	669,122	173,868 /ea	1,912,553	0.04%
					Chemical Feeding Units	7 ea	420	40,703		4,653		525,000	81,479.40 /ea	570,356	307,265	125,374 /ea	877,620	0.02%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	1,300	125,984			14,403	1,673,400	12,091.91 /mgd	1,813,787	976,386	18,601.16 /mgd	2,790,173	0.06%
					* unassigned *		1,300	125,984			14,403	1,673,400		1,813,787	976,386		2,790,173	0.06%
					240. Sodium Hypochlorite	18.000 ea	1,300	125,984			14,403	1,673,400	100,765.94 /ea	1,813,787	976,386	155,009.64 /ea	2,790,173	0.06%
		240.-064			Sodium Hypochlorite to MF Membranes Piping													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					240.-064 Sodium Hypochlorite to MF Membranes Piping								/lf			/lf		
		240.-250			Sodium Hypochlorite to Free Chlorine Piping													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					240.-250 Sodium Hypochlorite to Free Chlorine Piping								/lf			/lf		
		250.			Free Chlorine													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 46 Water and Wastewater Equipment	150.000 mgd							/mgd			/mgd		
					250. Free Chlorine								/ea			/ea		
					006. - Chemical Chemical Storage and Feed Systems	150.000 MGD	64,178	6,421,416	4,770,364	12,323,621	199,490	5,250,100	193,099.94 /MGD	28,964,991	14,191,490	287,709.88 /MGD	43,156,482	0.98%
	007. - EI/Pd/DB				Electrical Buildings, Pads & Ductbanks													
		020.			MBR Filtrate Tank													
			Building		Building													
				Div. 26	Electrical													
					Electrical	2652 sf				129,179			48.71 /sf	129,179	43,383	65 /sf	172,562	0.00%
					Div. 26 Electrical	150.000 mgd				129,179			861.19 /mgd	129,179	43,383	1,150.42 /mgd	172,562	0.00%
					Building Building	2,652.000 hsf				129,179			48.71 /hsf	129,179	43,383	65.07 /hsf	172,562	0.00%
			Process System E&I		Process System E&I													
				Div. 25	Integrated Automation (I&C)													
					I&C	1 ls				234,000			234,000.00 /ls	234,000	78,586	312,586 /ls	312,586	0.01%
					Div. 25 Integrated Automation (I&C)	150.000 mgd				234,000			1,560.00 /mgd	234,000	78,586	2,083.91 /mgd	312,586	0.01%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
				Div. 26	Electrical													
					Electrical	1 ls				936,000			936,000.00 /ls	936,000	314,345	1,250,345 /ls	1,250,345	0.03%
					Div. 26 Electrical	150.000 mgd				936,000			6,240.00 /mgd	936,000	314,345	8,335.64 /mgd	1,250,345	0.03%
					Process System E&I Process System E&I	1.000 al				1,170,000			1,170,000.00 /al	1,170,000	392,932	1,562,931.81 /al	1,562,932	0.04%
					020. MBR Filtrate Tank	150.000 MGD				1,299,179			8,661.19 /MGD	1,299,179	436,315	11,569.96 /MGD	1,735,494	0.04%
		020.E.			EB1 - MBR Electrical Building													
			Footing		Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	4109.472 sf	822	74,207	6,257				19.58 /sf	80,464	58,655	34 /sf	139,119	0.00%
					Keyway 4"	1370.736 lf	69	6,188	676				5.01 /lf	6,865	4,972	9 /lf	11,837	0.00%
					Waterstop 6" Bulb	1370.736 lf	137	12,279	7,945				14.75 /lf	20,224	13,333	24 /lf	33,556	0.00%
					Strip & Oil Footing Forms	4109.472 sf	21	1,841	288				0.52 /sf	2,128	1,526	1 /sf	3,654	0.00%
					Footing Rebar	8.208 tn	164	16,828	15,512				3,940.15 /tn	32,341	20,444	6,431 /tn	52,785	0.00%
					Pump Place Wall Footings	228.456 cy	127	13,467			1,096		63.75 /cy	14,563	10,395	109 /cy	24,958	0.00%
					4500 psi Concrete	228.456 cy			47,976				210.00 /cy	47,976	25,108	320 /cy	73,083	0.00%
					Div. 03 Concrete	4,109.470 hsf	1,339	124,810	78,654		1,096		49.78 /hsf	204,560	134,433	82.49 /hsf	338,993	0.01%
					Footing Footing	228.460 cy	1,339	124,810	78,654		1,096		895.39 /cy	204,560	134,433	1,483.82 /cy	338,993	0.01%
			Foundation Wall		Foundation Wall													
				Div. 03	Concrete													
					Keyway 4"	164.16 lf	8	741	81				5.01 /lf	822	595	9 /lf	1,418	0.00%
					Rented Form System 16'>	17784 sf	4,446	401,420	186,732				33.07 /sf	588,152	397,306	55 /sf	985,458	0.02%
					Wall Bulkhead Forms	342 sf	188	16,983	1,796				54.91 /sf	18,779	13,614	95 /sf	32,393	0.00%
					Waterstop 6" Bulb	342 lf	34	3,064	1,982				14.75 /lf	5,046	3,327	24 /lf	8,372	0.00%
					Strip & Oil Wall Forms	17784 sf	89	7,965	1,245				0.52 /sf	9,210	6,603	1 /sf	15,813	0.00%
					Hot Water Charge	253.08 cy			2,126				8.40 /cy	2,126	1,113	13 /cy	3,238	0.00%
					Wall Rebar	20.52 tn	472	48,382	38,783				4,247.78 /tn	87,164	55,733	6,964 /tn	142,897	0.00%
					Finish- Top of Wall & Curb	287.28 sf	16	1,415					4.93 /sf	1,415	1,057	9 /sf	2,472	0.00%
					Pump Place Walls	253.08 cy	354	37,632			1,821		155.89 /cy	39,454	28,391	268 /cy	67,845	0.00%
					4500 psi Concrete	253.08 cy			53,147				210.00 /cy	53,147	27,814	320 /cy	80,961	0.00%
					Grind/Patch Walls	17784 sf	1,423	127,423	622				7.20 /sf	128,046	95,542	13 /sf	223,588	0.01%
					Liquid Curing Compounds	17784 sf	53	4,779	14,005				1.06 /sf	18,784	10,900	2 /sf	29,684	0.00%
					Div. 03 Concrete	17,784.000 hsf	7,084	649,805	300,518		1,821		53.54 /hsf	952,144	641,996	89.64 /hsf	1,594,140	0.04%
					Foundation Wall Foundation Wall	253.080 cy	7,084	649,805	300,518		1,821		3,762.23 /cy	952,144	641,996	6,298.96 /cy	1,594,140	0.04%
			Slab		Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	2629.12 sf	894	80,709	4,003				32.22 /sf	84,711	62,328	56 /sf	147,039	0.00%
					S-O-G Const Joints > 1'	4929.6 sf	1,775	160,230	7,505				34.03 /sf	167,735	123,508	59 /sf	291,244	0.01%
					Strip & Oil SOG Form	7558.72 sf	38	3,385	529				0.52 /sf	3,915	2,807	1 /sf	6,721	0.00%
					SOG Rebar	230.048 tn	3,451	353,740	434,790				3,427.68 /tn	788,530	486,635	5,543 /tn	1,275,165	0.03%
					Mesh Support - bricks	3813 ea	8	782	1,962				0.72 /ea	2,744	1,599	1 /ea	4,343	0.00%
					Finish- Hard Trowel	32864 sf	756	67,695					2.06 /sf	67,695	50,585	4 /sf	118,280	0.00%
					Pump Place Slab on Grade	3647.904 cy	4,377	464,941			10,505		130.33 /cy	475,446	344,431	225 /cy	819,877	0.02%
					4500 psi Concrete	3647.904 cy			766,060				210.00 /cy	766,060	400,909	320 /cy	1,166,969	0.03%
					Liquid Curing Compounds	32864 sf	99	8,832	25,880				1.06 /sf	34,712	20,144	2 /sf	54,856	0.00%
					Seal Floors	32864 sf	164	14,719	6,901				0.66 /sf	21,621	14,611	1 /sf	36,231	0.00%
					Div. 03 Concrete	32,864.000 hsf	11,561	1,155,034	1,247,631		10,505		73.43 /hsf	2,413,169	1,507,556	119.30 /hsf	3,920,726	0.09%
					Slab Slab	3,647.900 cy	11,561	1,155,034	1,247,631		10,505		661.52 /cy	2,413,169	1,507,556	1,074.79 /cy	3,920,726	0.09%
					020.E. EB1 - MBR Electrical Building	32,864.000 sf	19,984	1,929,648	1,626,803		13,423		108.63 /sf	3,569,874	2,283,985	178.12 /sf	5,853,859	0.13%
		020-2.			Membrane Tanks for MBR													
			Building		Building													
				Div. 26	Electrical													
					Electrical	71974 sf				3,505,854			48.71 /sf	3,505,854	1,177,403	65 /sf	4,683,256	0.11%
					Div. 26 Electrical	150.000 mgd				3,505,854			23,372.36 /mgd	3,505,854	1,177,403	31,221.71 /mgd	4,683,256	0.11%
					Building Building	71,974.000 hsf				3,505,854			48.71 /hsf	3,505,854	1,177,403	65.07 /hsf	4,683,256	0.11%
			Process System E&I		Process System E&I													
				Div. 25	Integrated Automation (I&C)													
					Process I&C	al							/al			/al		
					Div. 25 Integrated Automation (I&C)	150.000 mgd							/mgd			/mgd		
				Div. 26	Electrical													
					Process Electrical	al							/al			/al		
					Div. 26 Electrical	150.000 mgd							/mgd			/mgd		
					Process System E&I Process System E&I	1.000 al							/al			/al		
					020-2. Membrane Tanks for MBR	71,974.000 hsf				3,505,854			48.71 /hsf	3,505,854	1,177,403	65.07 /hsf	4,683,256	0.11%
		020-3.			Bioreactor Tanks fro MBR													
			Building		Building													
				Div. 26	Electrical													
					Electrical	420000 sf				20,458,200			48.71 /sf	20,458,200	6,870,664	65 /sf	27,328,864	0.62%
					Div. 26 Electrical	150.000 mgd				20,458,200			136,388.00 /mgd	20,458,200	6,870,664	182,192.43 /mgd	27,328,864	0.62%
					Building Building	420,000.000 hsf				20,458,200			48.71 /hsf	20,458,200	6,870,664	65.07 /hsf	27,328,864	0.62%
			Process System E&I		Process System E&I													
				Div. 25	Integrated Automation (I&C)													
					Process I&C	al							/al			/al		
					Div. 25 Integrated Automation (I&C)	150.000 mgd							/mgd			/mgd		

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
				Div. 26	Electrical													
					Process Electrical	al							/al			/al		
					Div. 26 Electrical	150.000 mgd							/mgd			/mgd		
					Process System E&I Process System E&I	1.000 al							/al			/al		
		020-4.			020-3. Bioreactor Tanks fro MBR	420,000.000 hsf				20,458,200			48.71 /hsf	20,458,200	6,870,664	65.07 /hsf	27,328,864	0.62%
					MBR - Odor Control Facility													
			Building		Building													
				Div. 26	Electrical													
					Electrical	12060 sf				587,443			48.71 /sf	587,443	197,286	65 /sf	784,729	0.02%
					Div. 26 Electrical	150.000 mgd				587,443			3,916.28 /mgd	587,443	197,286	5,231.53 /mgd	784,729	0.02%
					Building Building	12,060.000 hsf				587,443			48.71 /hsf	587,443	197,286	65.07 /hsf	784,729	0.02%
			Process System E&I		Process System E&I													
				Div. 25	Integrated Automation (I&C)													
					Process I&C	1 al				285,280			285,279.95 /al	285,280	95,808	381,088 /al	381,088	0.01%
					Div. 25 Integrated Automation (I&C)	150.000 mgd				285,280			1,901.87 /mgd	285,280	95,808	2,540.59 /mgd	381,088	0.01%
					Process System E&I Process System E&I	1.000 al				285,280			285,279.95 /al	285,280	95,808	381,088.12 /al	381,088	0.01%
					020-4. MBR - Odor Control Facility	12,060.000 hsf				872,723			72.37 /hsf	872,723	293,094	96.67 /hsf	1,165,817	0.03%
		030.			LOX Tanks													
			Building		Building													
				Div. 26	Electrical													
					Electrical	17580.2 sf				856,332			48.71 /sf	856,332	287,590	65 /sf	1,143,921	0.03%
					Div. 26 Electrical	150.000 mgd				856,332			5,708.88 /mgd	856,332	287,590	7,626.14 /mgd	1,143,921	0.03%
					Building Building	17,580.200 hsf				856,332			48.71 /hsf	856,332	287,590	65.07 /hsf	1,143,921	0.03%
					030. LOX Tanks	17,580.200 sf				856,332			48.71 /sf	856,332	287,590	65.07 /sf	1,143,921	0.03%
		036.			Ozone Generators Building													
			Building		Building													
				Div. 26	Electrical													
					Electrical	42081.13 sf				2,049,772			48.71 /sf	2,049,772	688,394	65 /sf	2,738,165	0.06%
					Div. 26 Electrical	150.000 mgd				2,049,772			13,665.15 /mgd	2,049,772	688,394	18,254.44 /mgd	2,738,165	0.06%
					Building Building	42,081.130 hsf				2,049,772			48.71 /hsf	2,049,772	688,394	65.07 /hsf	2,738,165	0.06%
					036. Ozone Generators Building	150.000 MGD				2,049,772			13,665.15 /MGD	2,049,772	688,394	18,254.44 /MGD	2,738,165	0.06%
		040.			Ozone Tank													
			Building		Building													
				Div. 26	Electrical													
					Electrical	49164.3 sf				2,394,793			48.71 /sf	2,394,793	804,265	65 /sf	3,199,058	0.07%
					Div. 26 Electrical	150.000 mgd				2,394,793			15,965.29 /mgd	2,394,793	804,265	21,327.06 /mgd	3,199,058	0.07%
					Building Building	49,164.300 hsf				2,394,793			48.71 /hsf	2,394,793	804,265	65.07 /hsf	3,199,058	0.07%
					040. Ozone Tank	1.000 ls				2,394,793			2,394,793.05 /ls	2,394,793	804,265	3,199,058.29 /ls	3,199,058	0.07%
		050.			BAC													
			Building		Building													
				Div. 26	Electrical													
					Electrical	24024.09 sf				234,043			9.74 /sf	234,043	78,601	13 /sf	312,643	0.01%
					Div. 26 Electrical	150.000 mgd				234,043			1,560.29 /mgd	234,043	78,601	2,084.29 /mgd	312,643	0.01%
					Building Building	24,024.090 hsf				234,043			9.74 /hsf	234,043	78,601	13.01 /hsf	312,643	0.01%
					050. BAC	1.000 ls				234,043			234,042.68 /ls	234,043	78,601	312,643.38 /ls	312,643	0.01%
		050.B			BAC / Washwater Blower Room													
			Building		Building													
				Div. 26	Electrical													
					Electrical	24491.76 sf				1,192,994			48.71 /sf	1,192,994	400,654	65 /sf	1,593,648	0.04%
					Div. 26 Electrical	150.000 mgd				1,192,994			7,953.29 /mgd	1,192,994	400,654	10,624.32 /mgd	1,593,648	0.04%
					Building Building	24,491.760 hsf				1,192,994			48.71 /hsf	1,192,994	400,654	65.07 /hsf	1,593,648	0.04%
					050.B BAC / Washwater Blower Room	24,491.760 SF				1,192,994			48.71 /SF	1,192,994	400,654	65.07 /SF	1,593,648	0.04%
		050.C			Process Components													
			Process System E&I		Process System E&I													
				Div. 25	Integrated Automation (I&C)													
					Process I&C	1 al				13,178,646			13,178,645.50 /al	13,178,646	4,425,905	17,604,551 /al	17,604,551	0.40%
					Div. 25 Integrated Automation (I&C)	150.000 mgd				13,178,646			87,857.64 /mgd	13,178,646	4,425,905	117,363.67 /mgd	17,604,551	0.40%
				Div. 26	Electrical													
					Process Electrical	1 al				52,714,582			52,714,582.00 /al	52,714,582	17,703,620	70,418,202 /al	70,418,202	1.60%
					Div. 26 Electrical	150.000 mgd				52,714,582			351,430.55 /mgd	52,714,582	17,703,620	469,454.68 /mgd	70,418,202	1.60%
					Process System E&I Process System E&I	1.000 al				65,893,228			65,893,227.50 /al	65,893,228	22,129,525	88,022,752.56 /al	88,022,753	2.00%
					050.C Process Components	150.000 MGD				65,893,228			439,288.18 /MGD	65,893,228	22,129,525	586,818.35 /MGD	88,022,753	2.00%
		059.			MF (Membrane Filtration) Building													
			Building		Building													
				Div. 26	Electrical													
					Electrical	211172 sf				10,286,188			48.71 /sf	10,286,188	3,454,505	65 /sf	13,740,693	0.31%
					Div. 26 Electrical	150.000 mgd				10,286,188			68,574.59 /mgd	10,286,188	3,454,505	91,604.62 /mgd	13,740,693	0.31%
					Building Building	211,172.000 hsf				10,286,188			48.71 /hsf	10,286,188	3,454,505	65.07 /hsf	13,740,693	0.31%
					059. MF (Membrane Filtration) Building	211,172.000 sf				10,286,188			48.71 /sf	10,286,188	3,454,505	65.07 /sf	13,740,693	0.31%
		071.			Chemical Buildings Process E&I & Unidentified Piping													
			Process System E&I		Process System E&I													
				Div. 25	Integrated Automation (I&C)													
					I&C	1 ls				415,572			415,572.19 /ls	415,572	139,565	555,138 /ls	555,138	0.01%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Div. 25 Integrated Automation (I&C)	150.000 mgd				415,572			2,770.48 /mgd	415,572	139,565	3,700.92 /mgd	555,138	0.01%
				Div. 26	Electrical													
					Electrical	1 ls				1,662,289			1,662,288.75 /ls	1,662,289	558,262	2,220,550 /ls	2,220,550	0.05%
					Div. 26 Electrical	150.000 mgd				1,662,289			11,081.93 /mgd	1,662,289	558,262	14,803.67 /mgd	2,220,550	0.05%
					Process System E&I Process System E&I	1.000 al				2,077,861			2,077,860.94 /al	2,077,861	697,827	2,775,687.98 /al	2,775,688	0.06%
					071. Chemical Buildings Process E&I & Unidentified Piping	150.000 MGD				2,077,861			13,852.41 /MGD	2,077,861	697,827	18,504.59 /MGD	2,775,688	0.06%
		089.			RO Feed Tank / RO Pump Building													
			Building		Building													
				Div. 26	Electrical													
					Electrical	57255.6 sf				2,788,920			48.71 /sf	2,788,920	936,629	65 /sf	3,725,549	0.08%
					Div. 26 Electrical	150.000 mgd				2,788,920			18,592.80 /mgd	2,788,920	936,629	24,836.99 /mgd	3,725,549	0.08%
					Building Building	57,255.600 hsf				2,788,920			48.71 /hsf	2,788,920	936,629	65.07 /hsf	3,725,549	0.08%
					089. RO Feed Tank / RO Pump Building	57,255.600 sf				2,788,920			48.71 /sf	2,788,920	936,629	65.07 /sf	3,725,549	0.08%
		139.			RO Facility													
			Building		Building													
				Div. 26	Electrical													
					Electrical	137563.05 sf				6,700,696			48.71 /sf	6,700,696	2,250,356	65 /sf	8,951,052	0.20%
					Div. 26 Electrical	150.000 mgd				6,700,696			44,671.31 /mgd	6,700,696	2,250,356	59,673.68 /mgd	8,951,052	0.20%
					Building Building	137,563.050 hsf				6,700,696			48.71 /hsf	6,700,696	2,250,356	65.07 /hsf	8,951,052	0.20%
					139. RO Facility	137,563.050 sf				6,700,696			48.71 /sf	6,700,696	2,250,356	65.07 /sf	8,951,052	0.20%
		140.			RO (1st Stage)													
			Process System E&I		Process System E&I													
				Div. 25	Integrated Automation (I&C)													
					Process I&C	1 al				5,084,424			5,084,424.07 /al	5,084,424	1,707,549	6,791,973 /al	6,791,973	0.15%
					Div. 25 Integrated Automation (I&C)	150.000 mgd				5,084,424			33,896.16 /mgd	5,084,424	1,707,549	45,279.82 /mgd	6,791,973	0.15%
				Div. 26	Electrical													
					Process Electrical	1 al				20,337,696			20,337,696.27 /al	20,337,696	6,830,194	27,167,891 /al	27,167,891	0.62%
					Div. 26 Electrical	150.000 mgd				20,337,696			135,584.64 /mgd	20,337,696	6,830,194	181,119.27 /mgd	27,167,891	0.62%
					Process System E&I Process System E&I	1.000 al				25,422,120			25,422,120.34 /al	25,422,120	8,537,743	33,959,863.43 /al	33,959,863	0.77%
					140. RO (1st Stage)	150.000 MGD				25,422,120			169,480.80 /MGD	25,422,120	8,537,743	226,399.09 /MGD	33,959,863	0.77%
		190.			UV/AOP													
			Building		Building													
				Div. 26	Electrical													
					Electrical	41478.15 ls				2,020,401			48.71 /ls	2,020,401	678,530	65 /ls	2,698,930	0.06%
					Div. 26 Electrical	150.000 mgd				2,020,401			13,469.34 /mgd	2,020,401	678,530	17,992.87 /mgd	2,698,930	0.06%
					Building Building	41,478.150 hsf				2,020,401			48.71 /hsf	2,020,401	678,530	65.07 /hsf	2,698,930	0.06%
			Process System E&I		Process System E&I													
				Div. 25	Integrated Automation (I&C)													
					I&C	1 ls				1,348,632			1,348,632.05 /ls	1,348,632	452,923	1,801,555 /ls	1,801,555	0.04%
					Div. 25 Integrated Automation (I&C)	150.000 mgd				1,348,632			8,990.88 /mgd	1,348,632	452,923	12,010.37 /mgd	1,801,555	0.04%
				Div. 26	Electrical													
					Electrical	1 ls				5,394,528			5,394,528.18 /ls	5,394,528	1,811,694	7,206,222 /ls	7,206,222	0.16%
					Div. 26 Electrical	150.000 mgd				5,394,528			35,963.52 /mgd	5,394,528	1,811,694	48,041.48 /mgd	7,206,222	0.16%
					Process System E&I Process System E&I	1.000 al				6,743,160			6,743,160.23 /al	6,743,160	2,264,617	9,007,777.37 /al	9,007,777	0.20%
					190. UV/AOP	150.000 MGD				8,763,561			58,423.74 /MGD	8,763,561	2,943,147	78,044.72 /MGD	11,706,708	0.27%
		199.			Chemical Building													
			Building		Building													
				Div. 25	Integrated Automation (I&C)													
					I&C	32,869.500 sf							/sf			/sf		
					Div. 25 Integrated Automation (I&C)	150.000 mgd							/mgd			/mgd		
				Div. 26	Electrical													
					Electrical	32869.5 sf				1,601,073			48.71 /sf	1,601,073	537,703	65 /sf	2,138,776	0.05%
					Div. 26 Electrical	150.000 mgd				1,601,073			10,673.82 /mgd	1,601,073	537,703	14,258.51 /mgd	2,138,776	0.05%
					Building Building	32,869.500 hsf				1,601,073			48.71 /hsf	1,601,073	537,703	65.07 /hsf	2,138,776	0.05%
					199. Chemical Building	32,869.500 sf				1,601,073			48.71 /sf	1,601,073	537,703	65.07 /sf	2,138,776	0.05%
		201.			Post Treatment Buildings Process E&I & Unidentified Piping													
			Process System E&I		Process System E&I													
				Div. 25	Integrated Automation (I&C)													
					I&C	1 ls				902,470			902,470.01 /ls	902,470	303,085	1,205,555 /ls	1,205,555	0.03%
					Div. 25 Integrated Automation (I&C)	150.000 mgd				902,470			6,016.47 /mgd	902,470	303,085	8,037.03 /mgd	1,205,555	0.03%
				Div. 26	Electrical													
					Electrical	1 ls				3,609,880			3,609,880.02 /ls	3,609,880	1,212,339	4,822,219 /ls	4,822,219	0.11%
					Div. 26 Electrical	150.000 mgd				3,609,880			24,065.87 /mgd	3,609,880	1,212,339	32,148.13 /mgd	4,822,219	0.11%
					Process System E&I Process System E&I	1.000 al				4,512,350			4,512,350.03 /al	4,512,350	1,515,424	6,027,773.78 /al	6,027,774	0.14%
					201. Post Treatment Buildings Process E&I & Unidentified Piping	150.000 MGD				4,512,350			30,082.33 /MGD	4,512,350	1,515,424	40,185.16 /MGD	6,027,774	0.14%
		239.			Chlorine Building													
			Building		Building													
				Div. 25	Integrated Automation (I&C)													
					I&C	25,419.150 sf							/sf			/sf		
					Div. 25 Integrated Automation (I&C)	150.000 mgd							/mgd			/mgd		
				Div. 26	Electrical													
					Electrical	25132.2 sf				1,224,189			48.71 /sf	1,224,189	411,131	65 /sf	1,635,320	0.04%
					Div. 26 Electrical	150.000 mgd				1,224,189			8,161.26 /mgd	1,224,189	411,131	10,902.13 /mgd	1,635,320	0.04%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Building Building	25,419.150 hsf				1,224,189			48.16 /hsf	1,224,189	411,131	64.33 /hsf	1,635,320	0.04%
					239. Chlorine Building	25,419.150 sf				1,224,189			48.16 /sf	1,224,189	411,131	64.33 /sf	1,635,320	0.04%
		260.			Product Water Wet Well Tank (Clearwell/Chlor Contact Tank)/High Svc Pump Sta													
			Building		Building													
				Div. 25	Integrated Automation (I&C)													
					I&C	143478.3 sf				4,163,740			29.02 /sf	4,163,740	1,398,347	39 /sf	5,562,087	0.13%
					Div. 25 Integrated Automation (I&C)	150.000 mgd				4,163,740			27,758.27 /mgd	4,163,740	1,398,347	37,080.58 /mgd	5,562,087	0.13%
				Div. 26	Electrical													
					Electrical	143478.3 sf				6,988,828			48.71 /sf	6,988,828	2,347,122	65 /sf	9,335,950	0.21%
					Div. 26 Electrical	150.000 mgd				6,988,828			46,592.19 /mgd	6,988,828	2,347,122	62,239.67 /mgd	9,335,950	0.21%
					Building Building	143,478.300 hsf				11,152,568			77.73 /hsf	11,152,568	3,745,469	103.83 /hsf	14,898,037	0.34%
			Process System E&I		Process System E&I													
				Div. 25	Integrated Automation (I&C)													
					I&C	1 ls				324,000			324,000.00 /ls	324,000	108,812	432,812 /ls	432,812	0.01%
					Div. 25 Integrated Automation (I&C)	150.000 mgd				324,000			2,160.00 /mgd	324,000	108,812	2,885.41 /mgd	432,812	0.01%
				Div. 26	Electrical													
					Electrical	1 ls				1,296,000			1,296,000.00 /ls	1,296,000	435,248	1,731,248 /ls	1,731,248	0.04%
					Div. 26 Electrical	150.000 mgd				1,296,000			8,640.00 /mgd	1,296,000	435,248	11,541.65 /mgd	1,731,248	0.04%
					Process System E&I Process System E&I	1.000 al				1,620,000			1,620,000.00 /al	1,620,000	544,059	2,164,059.40 /al	2,164,059	0.05%
					260. Product Water Wet Well Tank (Clearwell/Chlor Contact Tank)/High Svc Pump Sta	1.000 ls				12,772,568			12,772,568.26 /ls	12,772,568	4,289,528	17,062,096.63 /ls	17,062,097	0.39%
		260.E			High Service PS Electrical Room													
			Building		Building													
				Div. 04	Masonry													
					Interior Staging over 10'	9850.35 sf	49	5,086	4,925				1.02 /sf	10,011	6,146	2 /sf	16,157	0.00%
					Staging to 30'	9850.35 sf	49	5,086	7,388				1.27 /sf	12,474	7,435	2 /sf	19,908	0.00%
					Rub Block	9850.35 sf	131	13,559					1.38 /sf	13,559	9,921	2 /sf	23,480	0.00%
					Mortar	709.35 cf			5,534				7.80 /cf	5,534	2,896	12 /cf	8,430	0.00%
					Mortar	1182 cf			9,221				7.80 /cf	9,221	4,826	12 /cf	14,047	0.00%
					Grout Fill 10" Block Cells	6097.35 cf	1,829	188,886	38,733				37.33 /cf	227,619	158,477	63 /cf	386,096	0.01%
					Grout Fill 10"Lintel Block	49.35 cf	15	1,529	314				37.33 /cf	1,842	1,283	63 /cf	3,125	0.00%
					Grout Fill 10" Bond Beam	78.75 cf	24	2,440	500				37.33 /cf	2,940	2,047	63 /cf	4,987	0.00%
					Dur-O-Wall 10"	8008.5 lf			3,700				0.46 /lf	3,700	1,936	1 /lf	5,636	0.00%
					Wall Ties	11397 ea	152	15,688	1,436				1.50 /ea	17,124	12,230	3 /ea	29,354	0.00%
					Extruded Control Joints 1/2"	955.5 lf	5	563	2,237				2.93 /lf	2,801	1,583	5 /lf	4,384	0.00%
					Masonry Rebar # 5	46474.35 lbs	558	57,588	32,718				1.94 /lbs	90,306	59,259	3 /lbs	149,565	0.00%
					Masonry Rebar # 5	177.3 lbs	2	220	125				1.94 /lbs	345	226	3 /lbs	571	0.00%
					Standard Brick	65909.25 ea	2,636	272,240	69,205				5.18 /ea	341,444	235,413	9 /ea	576,858	0.01%
					10" Block Bond Beam	345 ea	29	2,975	7,915				31.57 /ea	10,891	6,319	50 /ea	17,210	0.00%
					10" Block Lintels	129 ea	11	1,113	2,960				31.57 /ea	4,072	2,363	50 /ea	6,435	0.00%
					10" Fire Rated 3 hr	10117 ea	845	87,253	72,235				15.76 /ea	159,488	101,646	26 /ea	261,134	0.01%
					Div. 04 Masonry	9,850.350 vsf	6,336	654,223	259,146				92.73 /vsf	913,369	614,007	155.06 /vsf	1,527,376	0.03%
				Div. 05 -15	Div 5/6/7/8/9/10/11/12/22/23													
					Div 5 - \$/SF	13773.9 sf				780,154			56.64 /sf	780,154	262,006	76 /sf	1,042,160	0.02%
					Div 6 - \$/SF	13773.9 sf				23,691			1.72 /sf	23,691	7,956	2 /sf	31,647	0.00%
					Div 7 - \$/SF	13773.9 sf				563,766			40.93 /sf	563,766	189,335	55 /sf	753,100	0.02%
					Div 8 - \$/SF	13773.9 sf				126,169			9.16 /sf	126,169	42,372	12 /sf	168,541	0.00%
					Div 9 - \$/SF	13773.9 sf				495,860			36.00 /sf	495,860	166,529	48 /sf	662,390	0.02%
					Div 10 - \$/SF	13773.9 sf				26,446			1.92 /sf	26,446	8,882	3 /sf	35,327	0.00%
					Div 11 - \$/SF	13773.9 sf				13,085			0.95 /sf	13,085	4,395	1 /sf	17,480	0.00%
					Div 12 - \$/SF	13773.9 sf				5,096			0.37 /sf	5,096	1,712	0 /sf	6,808	0.00%
					Div 22 - \$/SF	13773.9 sf				84,159			6.11 /sf	84,159	28,264	8 /sf	112,422	0.00%
					Div 23 - \$/SF	13773.9 sf				808,115			58.67 /sf	808,115	271,397	78 /sf	1,079,511	0.02%
					Div. 05 -15 Div 5/6/7/8/9/10/11/12/22/23	13,773.900 hsf				2,926,541			212.47 /hsf	2,926,541	982,847	283.83 /hsf	3,909,387	0.09%
			Div. 25		Integrated Automation (I&C)													
					I&C	13773.9 sf				399,719			29.02 /sf	399,719	134,241	39 /sf	533,960	0.01%
					Div. 25 Integrated Automation (I&C)	150.000 mgd				399,719			2,664.79 /mgd	399,719	134,241	3,559.73 /mgd	533,960	0.01%
			Div. 26		Electrical													
					Electrical	13773.9 sf				1,070,645			77.73 /sf	1,070,645	359,565	104 /sf	1,430,210	0.03%
					Div. 26 Electrical	150.000 mgd				1,070,645			7,137.64 /mgd	1,070,645	359,565	9,534.73 /mgd	1,430,210	0.03%
					Building Building	13,773.900 hsf	6,336	654,223	259,146	4,396,904			385.53 /hsf	5,310,274	2,090,659	537.32 /hsf	7,400,933	0.17%
			Footing		Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	2457.9 sf	492	44,384	3,742				19.58 /sf	48,126	35,082	34 /sf	83,208	0.00%
					Keyway 4"	819.45 lf	41	3,699	404				5.01 /lf	4,104	2,972	9 /lf	7,076	0.00%
					Waterstop 6" Bulb	819.45 lf	82	7,340	4,750				14.75 /lf	12,090	7,971	24 /lf	20,061	0.00%
					Strip & Oil Footing Forms	2457.9 sf	12	1,101	172				0.52 /sf	1,273	913	1 /sf	2,186	0.00%
					Footing Rebar	5.1 tn	102	10,456	9,639				3,940.24 /tn	20,095	12,703	6,431 /tn	32,798	0.00%
					Pump Place Wall Footings	136.8 cy	76	8,064			657		63.75 /cy	8,721	6,225	109 /cy	14,945	0.00%
					4500 psi Concrete	136.8 cy			28,728				210.00 /cy	28,728	15,034	320 /cy	43,762	0.00%
					Div. 03 Concrete	2,457.900 hsf	805	75,045	47,435		657		50.10 /hsf	123,136	80,900	83.01 /hsf	204,036	0.00%
					Footing Footing	136.800 cy	805	75,045	47,435		657		900.12 /cy	123,136	80,900	1,491.49 /cy	204,036	0.00%
			Foundation Wall		Foundation Wall													
				Div. 03	Concrete													

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Keyway 4"	153.9 lf	8	695	76				5.01 /lf	771	558	9	1,329	0.00%
					Rented Form System 16'->	6156.3 sf	1,539	138,960	64,641				33.07 /sf	203,601	137,536	55	341,137	0.01%
					Wall Bulkhead Forms	307.8 sf	169	15,285	1,616				54.91 /sf	16,901	12,253	95	29,154	0.00%
					Waterstop 6" Bulb	307.8 lf	31	2,757	1,784				14.75 /lf	4,541	2,994	24	7,535	0.00%
					Strip & Oil Wall Forms	6156.3 sf	31	2,757	431				0.52 /sf	3,188	2,286	1	5,474	0.00%
					Hot Water Charge	228 cy			1,915				8.40 /cy	1,915	1,002	13	2,918	0.00%
					Wall Rebar	20.1 tn	462	47,391	37,989				4,247.78 /tn	85,380	54,592	6,964	139,973	0.00%
					Finish- Top of Wall & Curb	256.5 sf	14	1,263					4.93 /sf	1,263	944	9	2,208	0.00%
					Pump Place Walls	228 cy	319	33,903			1,641		155.89 /cy	35,544	25,578	268	61,122	0.00%
					4500 psi Concrete	228 cy			47,880				210.00 /cy	47,880	25,057	320	72,937	0.00%
					Grind/Patch Walls	6156.3 sf	493	44,110	215				7.20 /sf	44,326	33,074	13	77,399	0.00%
					Liquid Curing Compounds	6156.3 sf	18	1,654	4,848				1.06 /sf	6,503	3,773	2	10,276	0.00%
					Div. 03 Concrete	6,156.300 hsf	3,084	288,776	161,396		1,641		73.39 /hsf	451,813	299,648	122.06 /hsf	751,461	0.02%
					Foundation Wall Foundation Wall	228.000 cy	3,084	288,776	161,396		1,641		1,981.64 /cy	451,813	299,648	3,295.88 /cy	751,461	0.02%
				Slab	Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	1106.55 sf	376	33,969	1,685				32.22 /sf	35,654	26,233	56	61,886	0.00%
					S-O-G Const Joints > 1'	2066.1 sf	744	67,156	3,146				34.03 /sf	70,301	51,765	59	122,066	0.00%
					Strip & Oil SOG Form	3172.65 sf	16	1,421	222				0.52 /sf	1,643	1,178	1	2,821	0.00%
					SOG Rebar	99.45 tn	1,492	152,922	187,961				3,427.69 /tn	340,884	210,373	5,543	551,257	0.01%
					Mesh Support - bricks	1592 ea	3	326	819				0.72 /ea	1,145	668	1	1,813	0.00%
					Finish- Hard Trowel	13773.9 sf	317	28,372					2.06 /sf	28,372	21,201	4	49,573	0.00%
					Pump Place Slab on Grade	1530.45 cy	1,837	195,063			4,407		130.33 /cy	199,470	144,503	225	343,973	0.01%
					4500 psi Concrete	1530.45 cy			321,395				210.00 /cy	321,395	168,198	320	489,593	0.01%
					Liquid Curing Compounds	13773.9 sf	41	3,702	10,847				1.06 /sf	14,548	8,442	2	22,991	0.00%
					Seal Floors	13773.9 sf	69	6,169	2,893				0.66 /sf	9,062	6,124	1	15,185	0.00%
					Div. 03 Concrete	13,773.900 hsf	4,894	489,100	528,967		4,407		74.23 /hsf	1,022,474	638,686	120.60 /hsf	1,661,160	0.04%
					Slab Slab	1,530.450 cy	4,894	489,100	528,967		4,407		668.09 /cy	1,022,474	638,686	1,085.41 /cy	1,661,160	0.04%
					260.E High Service PS Electrical Room	13,773.900 sf	15,119	1,507,144	996,944	4,396,904	6,705		501.51 /sf	6,907,697	3,109,893	727.29 /sf	10,017,590	0.23%
		600.			EB2 - RO Electrical Building													
			Building		Building													
				Div. 04	Masonry													
					Interior Staging over 10'	8704.5 sf	44	4,494	4,352				1.02 /sf	8,846	5,431	2	14,278	0.00%
					Staging to 30'	8704.5 sf	44	4,494	6,528				1.27 /sf	11,023	6,570	2	17,593	0.00%
					Rub Block	8704.5 sf	116	11,981					1.38 /sf	11,981	8,767	2	20,748	0.00%
					Mortar	629.85 cf			4,914				7.80 /cf	4,914	2,572	12	7,485	0.00%
					Mortar	1045.2 cf			8,154				7.80 /cf	8,154	4,267	12	12,422	0.00%
					Grout Fill 10" Block Cells	5383.05 cf	1,615	166,758	34,196				37.33 /cf	200,954	139,912	63	340,865	0.01%
					Grout Fill 10"Lintel Block	42.9 cf	13	1,329	273				37.33 /cf	1,601	1,115	63	2,716	0.00%
					Grout Fill 10" Bond Beam	71.55 cf	21	2,217	455				37.33 /cf	2,671	1,860	63	4,531	0.00%
					Dur-O-Wall 10"	7072.35 lf			3,267				0.46 /lf	3,267	1,710	1	4,977	0.00%
					Wall Ties	10065 ea	134	13,854	1,268				1.50 /ea	15,122	10,801	3	25,923	0.00%
					Extruded Control Joints 1/2"	844.65 lf	5	498	1,978				2.93 /lf	2,476	1,399	5	3,875	0.00%
					Masonry Rebar # 5	41045.55 lbs	493	50,861	28,896				1.94 /lbs	79,757	52,337	3	132,094	0.00%
					Masonry Rebar # 5	157.5 lbs	2	195	111				1.94 /lbs	306	201	3	507	0.00%
					Standard Brick	58211 ea	2,328	240,442	61,122				5.18 /ea	301,563	207,917	9	509,480	0.01%
					10" Block Bond Beam	301 ea	25	2,596	6,906				31.57 /ea	9,502	5,513	50	15,015	0.00%
					10" Block Lintels	115 ea	10	992	2,638				31.57 /ea	3,630	2,107	50	5,737	0.00%
					10" Fire Rated 3 hr	8934 ea	746	77,050	63,789				15.76 /ea	140,839	89,760	26	230,599	0.01%
					Div. 04 Masonry	8,704.500 vsf	5,595	577,761	228,846				92.67 /vsf	806,607	542,238	154.96 /vsf	1,348,845	0.03%
				Div. 05 -15	Div 5/6/7/8/9/10/11/12/22/23													
					Div 5 - \$/SF	14316.6 sf				810,892			56.64 /sf	810,892	272,329	76	1,083,222	0.02%
					Div 6 - \$/SF	14316.6 sf				24,625			1.72 /sf	24,625	8,270	2	32,894	0.00%
					Div 7 - \$/SF	14316.6 sf				585,978			40.93 /sf	585,978	196,794	55	782,773	0.02%
					Div 8 - \$/SF	14316.6 sf				131,140			9.16 /sf	131,140	44,042	12	175,182	0.00%
					Div 9 - \$/SF	14316.6 sf				515,398			36.00 /sf	515,398	173,091	48	688,488	0.02%
					Div 10 - \$/SF	14316.6 sf				27,488			1.92 /sf	27,488	9,231	3	36,719	0.00%
					Div 11 - \$/SF	14316.6 sf				13,601			0.95 /sf	13,601	4,568	1	18,168	0.00%
					Div 12 - \$/SF	14316.6 sf				5,297			0.37 /sf	5,297	1,779	0	7,076	0.00%
					Div 22 - \$/SF	14316.6 sf				87,474			6.11 /sf	87,474	29,377	8	116,852	0.00%
					Div 23 - \$/SF	14316.6 sf				839,955			58.67 /sf	839,955	282,090	78	1,122,045	0.03%
					Div. 05 -15 Div 5/6/7/8/9/10/11/12/22/23	14,316.600 hsf				3,041,848			212.47 /hsf	3,041,848	1,021,572	283.83 /hsf	4,063,420	0.09%
				Div. 25	Integrated Automation (I&C)													
					I&C	14316.6 sf				415,468			29.02 /sf	415,468	139,530	39	554,998	0.01%
					Div. 25 Integrated Automation (I&C)	150.000 mgd				415,468			2,769.79 /mgd	415,468	139,530	3,699.99 /mgd	554,998	0.01%
				Div. 26	Electrical													
					Electrical	14316.6 sf				1,112,829			77.73 /sf	1,112,829	373,732	104	1,486,561	0.03%
					Div. 26 Electrical	150.000 mgd				1,112,829			7,418.86 /mgd	1,112,829	373,732	9,910.41 /mgd	1,486,561	0.03%
					Building Building	14,316.600 hsf	5,595	577,761	228,846	4,570,145			375.56 /hsf	5,376,752	2,077,072	520.64 /hsf	7,453,824	0.17%
			Footing		Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	2176.05 sf	435	39,294	3,313				19.58 /sf	42,607	31,059	34	73,667	0.00%
					Keyway 4"	730.2 lf	37	3,296	360				5.01 /lf	3,657	2,649	9	6,305	0.00%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Waterstop 6" Bulb	730.2 lf	73	6,541	4,232				14.75 /lf	10,773	7,103	24 /lf	17,876	0.00%
					Strip & Oil Footing Forms	2176.05 sf	11	975	152				0.52 /sf	1,127	808	1 /sf	1,935	0.00%
					Footing Rebar	14.33 tn	287	29,380	27,085				3,940.30 /tn	56,465	35,693	6,431 /tn	92,158	0.00%
					Pump Place Wall Footings	114.6 cy	64	6,755			550		63.75 /cy	7,305	5,214	109 /cy	12,520	0.00%
					4500 psi Concrete	114.6 cy			24,066				210.00 /cy	24,066	12,595	320 /cy	36,661	0.00%
					Div. 03 Concrete	2,176.050 hsf	906	86,242	59,209		550		67.09 /hsf	146,000	95,121	110.81 /hsf	241,121	0.01%
					Footing Footing	114.600 cy	906	86,242	59,209		550		1,274.00 /cy	146,000	95,121	2,104.02 /cy	241,121	0.01%
			Foundation Wall		Foundation Wall													
				Div. 03	Concrete													
					Keyway 4"	128.85 lf	6	582	64				5.01 /lf	645	467	9 /lf	1,113	0.00%
					Rented Form System 16'->	5440.2 sf	1,360	122,796	57,122				33.07 /sf	179,918	121,537	55 /sf	301,456	0.01%
					Wall Bulkhead Forms	271.95 sf	150	13,505	1,428				54.91 /sf	14,932	10,826	95 /sf	25,758	0.00%
					Waterstop 6" Bulb	271.95 lf	27	2,436	1,576				14.75 /lf	4,012	2,645	24 /lf	6,657	0.00%
					Strip & Oil Wall Forms	5440.2 sf	27	2,437	381				0.52 /sf	2,817	2,020	1 /sf	4,837	0.00%
					Hot Water Charge	200.4 cy			1,683				8.40 /cy	1,683	881	13 /cy	2,564	0.00%
					Wall Rebar	14.25 tn	328	33,598	26,933				4,247.84 /tn	60,532	38,704	6,964 /tn	99,236	0.00%
					Finish- Top of Wall & Curb	229.05 sf	13	1,128					4.93 /sf	1,128	843	9 /sf	1,971	0.00%
					Pump Place Walls	200.4 cy	281	29,799			1,442		155.89 /cy	31,241	22,481	268 /cy	53,723	0.00%
					4500 psi Concrete	200.4 cy			42,084				210.00 /cy	42,084	22,024	320 /cy	64,108	0.00%
					Grind/Patch Walls	5440.2 sf	435	38,979	190				7.20 /sf	39,170	29,227	13 /sf	68,396	0.00%
					Liquid Curing Compounds	5440.2 sf	16	1,462	4,284				1.06 /sf	5,746	3,335	2 /sf	9,081	0.00%
					Div. 03 Concrete	5,440.200 hsf	2,643	246,722	135,746		1,442		70.57 /hsf	383,910	254,991	117.44 /hsf	638,900	0.01%
					Foundation Wall Foundation Wall	200.400 cy	2,643	246,722	135,746		1,442		1,915.72 /cy	383,910	254,991	3,188.13 /cy	638,900	0.01%
			Slab		Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	1145.25 sf	389	35,157	1,744				32.22 /sf	36,900	27,150	56 /sf	64,051	0.00%
					S-O-G Const Joints > 1'	2147.4 sf	773	69,798	3,269				34.03 /sf	73,068	53,802	59 /sf	126,870	0.00%
					Strip & Oil SOG Form	3292.8 sf	16	1,475	231				0.52 /sf	1,705	1,223	1 /sf	2,928	0.00%
					SOG Rebar	100.2 tn	1,503	154,076	189,378				3,427.68 /tn	343,454	211,959	5,543 /tn	555,413	0.01%
					Mesh Support - bricks	1660.8 ea	3	341	854				0.72 /ea	1,195	697	1 /ea	1,892	0.00%
					Finish- Hard Trowel	14316.6 sf	329	29,490					2.06 /sf	29,490	22,037	4 /sf	51,527	0.00%
					Pump Place Slab on Grade	1589.1 cy	1,907	202,538			4,576		130.33 /cy	207,114	150,041	225 /cy	357,155	0.01%
					4500 psi Concrete	1589.1 cy			333,711				210.00 /cy	333,711	174,644	320 /cy	508,355	0.01%
					Liquid Curing Compounds	14316.6 sf	43	3,847	11,274				1.06 /sf	15,122	8,775	2 /sf	23,897	0.00%
					Seal Floors	14316.6 sf	72	6,412	3,006				0.66 /sf	9,419	6,365	1 /sf	15,784	0.00%
					Div. 03 Concrete	14,316.600 hsf	5,036	503,134	543,468		4,576		73.42 /hsf	1,051,178	656,692	119.29 /hsf	1,707,870	0.04%
					Slab Slab	1,589.100 cy	5,036	503,134	543,468		4,576		661.49 /cy	1,051,178	656,692	1,074.74 /cy	1,707,870	0.04%
					600. EB2 - RO Electrical Building	14,316.600 sf	14,180	1,413,858	967,268	4,570,145	6,569		486.00 /sf	6,957,840	3,083,876	701.40 /sf	10,041,715	0.23%
		610.			Battery Pad Generator													
			Building		Building													
				Div. 25	Integrated Automation (I&C)													
					I&C	6,547.800 sf							/sf			/sf		
					Div. 25 Integrated Automation (I&C)	150.000 mgd							/mgd			/mgd		
				Div. 26	Electrical													
					Electrical	6,547.800 sf							/sf			/sf		
					Div. 26 Electrical	150.000 mgd							/mgd			/mgd		
					Building Building	6,547.800 hsf							/hsf			/hsf		
			Footing		Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	1937.25 sf	387	34,982	2,949				19.58 /sf	37,932	27,651	34 /sf	65,582	0.00%
					Keyway 4"	645.75 lf	32	2,915	319				5.01 /lf	3,234	2,342	9 /lf	5,576	0.00%
					Waterstop 6" Bulb	645.75 lf	65	5,785	3,743				14.75 /lf	9,527	6,281	24 /lf	15,808	0.00%
					Strip & Oil Footing Forms	1937.25 sf	10	868	136				0.52 /sf	1,003	719	1 /sf	1,723	0.00%
					Footing Rebar	4.05 tn	81	8,303	7,655				3,940.46 /tn	15,959	10,088	6,431 /tn	26,047	0.00%
					Pump Place Wall Footings	107.85 cy	60	6,358			518		63.75 /cy	6,875	4,907	109 /cy	11,782	0.00%
					4500 psi Concrete	107.85 cy			22,649				210.00 /cy	22,649	11,853	320 /cy	34,501	0.00%
					Div. 03 Concrete	1,937.250 hsf	635	59,210	37,451		518		50.16 /hsf	97,179	63,842	83.12 /hsf	161,020	0.00%
					Footing Footing	107.850 cy	635	59,210	37,451		518		901.05 /cy	97,179	63,842	1,493.00 /cy	161,020	0.00%
			Foundation Wall		Foundation Wall													
				Div. 03	Concrete													
					Keyway 4"	97.05 lf	5	438	48				5.01 /lf	486	352	9 /lf	838	0.00%
					Rented Form System 16'->	3881.7 sf	970	87,618	40,758				33.07 /sf	128,376	86,720	55 /sf	215,095	0.00%
					Wall Bulkhead Forms	194.1 sf	107	9,639	1,019				54.91 /sf	10,658	7,727	95 /sf	18,384	0.00%
					Waterstop 6" Bulb	194.1 lf	19	1,739	1,125				14.75 /lf	2,864	1,888	24 /lf	4,752	0.00%
					Strip & Oil Wall Forms	3881.7 sf	19	1,739	272				0.52 /sf	2,010	1,441	1 /sf	3,452	0.00%
					Hot Water Charge	143.85 cy			1,208				8.40 /cy	1,208	632	13 /cy	1,841	0.00%
					Wall Rebar	12.75 tn	293	30,062	24,098				4,247.85 /tn	54,160	34,630	6,964 /tn	88,790	0.00%
					Finish- Top of Wall & Curb	161.7 sf	9	796					4.93 /sf	796	595	9 /sf	1,392	0.00%
					Pump Place Walls	143.85 cy	201	21,390			1,035		155.89 /cy	22,425	16,138	268 /cy	38,563	0.00%
					4500 psi Concrete	143.85 cy			30,209				210.00 /cy	30,209	15,809	320 /cy	46,018	0.00%
					Grind/Patch Walls	3881.7 sf	311	27,813	136				7.20 /sf	27,948	20,854	13 /sf	48,802	0.00%
					Liquid Curing Compounds	3881.7 sf	12	1,043	3,057				1.06 /sf	4,100	2,379	2 /sf	6,479	0.00%
					Div. 03 Concrete	3,881.700 hsf	1,947	182,276	101,930		1,035		73.48 /hsf	285,241	189,165	122.22 /hsf	474,406	0.01%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Foundation Wall Foundation Wall	143.850 cy	1,947	182,276	101,930		1,035		1,982.90 /cy	285,241	189,165	3,297.92 /cy	474,406	0.01%
			Slab		Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	529.05 sf	180	16,241	805				32.22 /sf	17,046	12,542	56 /sf	29,588	0.00%
					S-O-G Const Joints > 1'	987.9 sf	356	32,110	1,504				34.03 /sf	33,614	24,751	59 /sf	58,366	0.00%
					Strip & Oil SOG Form	1516.95 sf	8	679	106				0.52 /sf	786	563	1 /sf	1,349	0.00%
					SOG Rebar	47.55 tn	713	73,117	89,870				3,427.70 /tn	162,987	100,586	5,543 /tn	263,573	0.01%
					Mesh Support - bricks	762 ea	2	156	392				0.72 /ea	548	320	1 /ea	868	0.00%
					Finish- Hard Trowel	6585.6 sf	151	13,565					2.06 /sf	13,565	10,137	4 /sf	23,702	0.00%
					Pump Place Slab on Grade	731.7 cy	878	93,258			2,107		130.33 /cy	95,365	69,086	225 /cy	164,452	0.00%
					4500 psi Concrete	731.7 cy			153,657				210.00 /cy	153,657	80,415	320 /cy	234,072	0.01%
					Liquid Curing Compounds	6585.6 sf	20	1,770	5,186				1.06 /sf	6,956	4,037	2 /sf	10,992	0.00%
					Seal Floors	6585.6 sf	33	2,950	1,383				0.66 /sf	4,333	2,928	1 /sf	7,260	0.00%
					Div. 03 Concrete	6,585.600 hsf	2,340	233,847	252,904		2,107		74.23 /hsf	488,858	305,364	120.60 /hsf	794,222	0.02%
					Slab Slab	731.700 cy	2,340	233,847	252,904		2,107		668.11 /cy	488,858	305,364	1,085.45 /cy	794,222	0.02%
					610. Battery Pad Generator	1.000 ls	4,921	475,333	392,284		3,660		871,277.12 /ls	871,277	558,371	1,429,648.26 /ls	1,429,648	0.03%
		620.			Generator Pad													
			Building		Building													
				Div. 25	Integrated Automation (I&C)													
					I&C	46,545.600 sf							/sf			/sf		
					Div. 25 Integrated Automation (I&C)	150.000 mgd							/mgd			/mgd		
				Div. 26	Electrical													
					Electrical	46,545.600 sf							/sf			/sf		
					Div. 26 Electrical	150.000 mgd							/mgd			/mgd		
					Building Building	46,545.600 hsf							/hsf			/hsf		
			Footing		Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	3936.9 sf	787	71,091	5,994				19.58 /sf	77,085	56,192	34 /sf	133,277	0.00%
					Keyway 4"	1312.35 lf	66	5,924	648				5.01 /lf	6,572	4,760	9 /lf	11,332	0.00%
					Waterstop 6" Bulb	1312.35 lf	131	11,756	7,606				14.75 /lf	19,362	12,765	24 /lf	32,127	0.00%
					Strip & Oil Footing Forms	3936.9 sf	20	1,763	276				0.52 /sf	2,039	1,462	1 /sf	3,501	0.00%
					Footing Rebar	8.1 tn	162	16,607	15,309				3,940.24 /tn	31,916	20,175	6,431 /tn	52,091	0.00%
					Pump Place Wall Footings	219.15 cy	122	12,918			1,052		63.75 /cy	13,970	9,972	109 /cy	23,942	0.00%
					4500 psi Concrete	219.15 cy			46,022				210.00 /cy	46,022	24,085	320 /cy	70,106	0.00%
					Div. 03 Concrete	3,936.900 hsf	1,288	120,060	75,854		1,052		50.03 /hsf	196,966	129,411	82.90 /hsf	326,377	0.01%
					Footing Footing	219.150 cy	1,288	120,060	75,854		1,052		898.77 /cy	196,966	129,411	1,489.29 /cy	326,377	0.01%
			Foundation Wall		Foundation Wall													
				Div. 03	Concrete													
					Keyway 4"	197.25 lf	10	890	97				5.01 /lf	988	716	9 /lf	1,703	0.00%
					Rented Form System 16'->	7888.65 sf	1,972	178,063	82,831				33.07 /sf	260,893	176,237	55 /sf	437,131	0.01%
					Wall Bulkhead Forms	394.5 sf	217	19,590	2,071				54.91 /sf	21,661	15,704	95 /sf	37,366	0.00%
					Waterstop 6" Bulb	394.5 lf	39	3,534	2,287				14.75 /lf	5,820	3,837	24 /lf	9,658	0.00%
					Strip & Oil Wall Forms	7888.65 sf	39	3,533	552				0.52 /sf	4,085	2,929	1 /sf	7,015	0.00%
					Hot Water Charge	292.2 cy			2,454				8.40 /cy	2,454	1,285	13 /cy	3,739	0.00%
					Wall Rebar	25.65 tn	590	60,477	48,479				4,247.81 /tn	108,956	69,667	6,964 /tn	178,623	0.00%
					Finish- Top of Wall & Curb	328.65 sf	18	1,619					4.93 /sf	1,619	1,210	9 /sf	2,829	0.00%
					Pump Place Walls	292.2 cy	409	43,449			2,103		155.89 /cy	45,552	32,780	268 /cy	78,332	0.00%
					4500 psi Concrete	292.2 cy			61,362				210.00 /cy	61,362	32,113	320 /cy	93,475	0.00%
					Grind/Patch Walls	7888.65 sf	631	56,522	276				7.20 /sf	56,799	42,381	13 /sf	99,179	0.00%
					Liquid Curing Compounds	7888.65 sf	24	2,120	6,212				1.06 /sf	8,332	4,835	2 /sf	13,167	0.00%
					Div. 03 Concrete	7,888.650 hsf	3,950	369,798	206,622		2,103		73.34 /hsf	578,523	383,693	121.97 /hsf	962,216	0.02%
					Foundation Wall Foundation Wall	292.200 cy	3,950	369,798	206,622		2,103		1,979.89 /cy	578,523	383,693	3,293.01 /cy	962,216	0.02%
			Slab		Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	3739.2 sf	1,271	114,786	5,693				32.22 /sf	120,479	88,644	56 /sf	209,123	0.00%
					S-O-G Const Joints > 1'	6981.9 sf	2,513	226,937	10,630				34.03 /sf	237,567	174,927	59 /sf	412,495	0.01%
					Strip & Oil SOG Form	10720.95 sf	54	4,802	750				0.52 /sf	5,552	3,981	1 /sf	9,533	0.00%
					SOG Rebar	336.15 tn	5,042	516,891	635,324				3,427.68 /tn	1,152,216	711,080	5,543 /tn	1,863,295	0.04%
					Mesh Support - bricks	5379 ea	11	1,103	2,768				0.72 /ea	3,870	2,256	1 /ea	6,126	0.00%
					Finish- Hard Trowel	46545.6 sf	1,071	95,877					2.06 /sf	95,877	71,644	4 /sf	167,522	0.00%
					Pump Place Slab on Grade	5171.85 cy	6,206	659,175			14,893		130.33 /cy	674,069	488,320	225 /cy	1,162,389	0.03%
					4500 psi Concrete	5171.85 cy			1,086,089				210.00 /cy	1,086,089	568,393	320 /cy	1,654,481	0.04%
					Liquid Curing Compounds	46545.6 sf	140	12,508	36,655				1.06 /sf	49,163	28,529	2 /sf	77,692	0.00%
					Seal Floors	46545.6 sf	233	20,847	9,775				0.66 /sf	30,622	20,693	1 /sf	51,315	0.00%
					Div. 03 Concrete	46,545.600 hsf	16,541	1,652,927	1,787,683		14,893		74.24 /hsf	3,455,503	2,158,468	120.61 /hsf	5,613,972	0.13%
					Slab Slab	5,171.850 cy	16,541	1,652,927	1,787,683		14,893		668.14 /cy	3,455,503	2,158,468	1,085.49 /cy	5,613,972	0.13%
					620. Generator Pad	1.000 ls	21,778	2,142,785	2,070,160		18,048		4,230,992.40 /ls	4,230,992	2,671,573	6,902,564.94 /ls	6,902,565	0.16%
		630.			EB3 UV AOP Electric Building													
			Building		Building													
				Div. 04	Masonry													
					Interior Staging over 10'	10728.45 sf	54	5,539	5,364				1.02 /sf	10,903	6,694	2 /sf	17,597	0.00%
					Staging to 30'	10728.45 sf	54	5,539	8,046				1.27 /sf	13,585	8,098	2 /sf	21,683	0.00%
					Rub Block	10728.45 sf	143	14,767					1.38 /sf	14,767	10,805	2 /sf	25,573	0.00%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Mortar	768.6 cf			5,996				7.80 /cf	5,996	3,138	12 /cf	9,134	0.00%
					Mortar	1286.1 cf			10,034				7.80 /cf	10,034	5,251	12 /cf	15,284	0.00%
					Grout Fill 10" Block Cells	6634.65 cf	1,990	205,530	42,147				37.33 /cf	247,677	172,442	63 /cf	420,119	0.01%
					Grout Fill 10"Lintel Block	47.1 cf	14	1,459	299				37.33 /cf	1,758	1,224	63 /cf	2,982	0.00%
					Grout Fill 10 "Bond Beam	78.45 cf	24	2,430	498				37.33 /cf	2,929	2,039	63 /cf	4,968	0.00%
					Dur-O-Wall 10"	8720.7 lf			4,029				0.46 /lf	4,029	2,108	1 /lf	6,137	0.00%
					Wall Ties	12407 ea	165	17,078	1,563				1.50 /ea	18,641	13,314	3 /ea	31,955	0.00%
					Extruded Control Joints 1/2"	1035.15 lf	6	610	2,424				2.93 /lf	3,034	1,715	5 /lf	4,749	0.00%
					Masonry Rebar # 5	50599.05 lbs	607	62,699	35,622				1.94 /lbs	98,321	64,519	3 /lbs	162,839	0.00%
					Masonry Rebar # 5	188.25 lbs	2	233	133				1.94 /lbs	366	240	3 /lbs	606	0.00%
					Standard Brick	71758 ea	2,870	296,398	75,346				5.18 /ea	371,744	256,304	9 /ea	628,048	0.01%
					10" Block Bond Beam	377 ea	31	3,251	8,649				31.57 /ea	11,901	6,906	50 /ea	18,806	0.00%
					10" Block Lintels	142 ea	12	1,225	3,258				31.57 /ea	4,483	2,601	50 /ea	7,084	0.00%
					10" Fire Rated 3 hr	11011 ea	920	94,963	78,619				15.76 /ea	173,581	110,628	26 /ea	284,209	0.01%
					Div. 04 Masonry	10,728.450 vsf	6,892	711,722	282,026				92.63 /vsf	993,749	668,026	154.89 /vsf	1,661,774	0.04%
				Div. 05 -15	Div 5/6/7/8/9/10/11/12/22/23													
					Div 5 - \$/SF	15684.75 sf				888,384			56.64 /sf	888,384	298,354	76 /sf	1,186,738	0.03%
					Div 6 - \$/SF	15684.75 sf				26,978			1.72 /sf	26,978	9,060	2 /sf	36,038	0.00%
					Div 7 - \$/SF	15684.75 sf				641,977			40.93 /sf	641,977	215,601	55 /sf	857,578	0.02%
					Div 8 - \$/SF	15684.75 sf				143,672			9.16 /sf	143,672	48,251	12 /sf	191,923	0.00%
					Div 9 - \$/SF	15684.75 sf				564,651			36.00 /sf	564,651	189,632	48 /sf	754,283	0.02%
					Div 10 - \$/SF	15684.75 sf				30,115			1.92 /sf	30,115	10,114	3 /sf	40,228	0.00%
					Div 11 - \$/SF	15684.75 sf				14,901			0.95 /sf	14,901	5,004	1 /sf	19,905	0.00%
					Div 12 - \$/SF	15684.75 sf				5,803			0.37 /sf	5,803	1,949	0 /sf	7,752	0.00%
					Div 22 - \$/SF	15684.75 sf				95,834			6.11 /sf	95,834	32,185	8 /sf	128,019	0.00%
					Div 23 - \$/SF	15684.75 sf				920,224			58.67 /sf	920,224	309,047	78 /sf	1,229,272	0.03%
					Div. 05 -15 Div 5/6/7/8/9/10/11/12/22/23	15,684.750 hsf				3,332,539			212.47 /hsf	3,332,539	1,119,197	283.83 /hsf	4,451,736	0.10%
				Div. 25	Integrated Automation (I&C)													
					I&C	15684.75 sf				455,171			29.02 /sf	455,171	152,864	39 /sf	608,036	0.01%
					Div. 25 Integrated Automation (I&C)	150.000 mgd				455,171			3,034.48 /mgd	455,171	152,864	4,053.57 /mgd	608,036	0.01%
				Div. 26	Electrical													
					Electrical	15684.75 sf				1,219,176			77.73 /sf	1,219,176	409,447	104 /sf	1,628,623	0.04%
					Div. 26 Electrical	150.000 mgd				1,219,176			8,127.84 /mgd	1,219,176	409,447	10,857.48 /mgd	1,628,623	0.04%
					Building Building Footing	15,684.750 hsf	6,892	711,722	282,026	5,006,886			382.58 /hsf	6,000,635	2,349,534	532.37 /hsf	8,350,169	0.19%
				Footing	Concrete													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	2682.15 sf	536	48,433	4,084				19.58 /sf	52,517	38,283	34 /sf	90,800	0.00%
					Keyway 4"	894 lf	45	4,036	441				5.01 /lf	4,477	3,243	9 /lf	7,720	0.00%
					Waterstop 6" Bulb	894 lf	89	8,008	5,182				14.75 /lf	13,190	8,696	24 /lf	21,886	0.00%
					Strip & Oil Footing Forms	2682.15 sf	13	1,201	188				0.52 /sf	1,389	996	1 /sf	2,385	0.00%
					Footing Rebar	17.64 tn	353	36,166	33,340				3,940.24 /tn	69,506	43,937	6,431 /tn	113,443	0.00%
					Pump Place Wall Footings	141.15 cy	78	8,320			677		63.75 /cy	8,998	6,422	109 /cy	15,420	0.00%
					4500 psi Concrete	141.15 cy			29,642				210.00 /cy	29,642	15,513	320 /cy	45,154	0.00%
					Div. 03 Concrete	2,682.150 hsf	1,115	106,165	72,875		677		67.01 /hsf	179,718	117,090	110.66 /hsf	296,808	0.01%
					Footing Footing	141.150 cy	1,115	106,165	72,875		677		1,273.24 /cy	179,718	117,090	2,102.78 /cy	296,808	0.01%
				Foundation Wall	Foundation Wall													
				Div. 03	Concrete													
					Keyway 4"	141.15 lf	7	637	70				5.01 /lf	707	512	9 /lf	1,219	0.00%
					Rented Form System 16'->	5364.15 sf	1,341	121,080	56,324				33.07 /sf	177,403	119,838	55 /sf	297,242	0.01%
					Wall Bulkhead Forms	266.55 sf	147	13,236	1,399				54.91 /sf	14,636	10,611	95 /sf	25,247	0.00%
					Waterstop 6" Bulb	266.55 lf	27	2,388	1,545				14.75 /lf	3,933	2,593	24 /lf	6,525	0.00%
					Strip & Oil Wall Forms	5364.15 sf	27	2,403	375				0.52 /sf	2,778	1,992	1 /sf	4,770	0.00%
					Hot Water Charge	203.85 cy			1,712				8.40 /cy	1,712	896	13 /cy	2,608	0.00%
					Wall Rebar	15.75 tn	362	37,135	29,768				4,247.83 /tn	66,903	42,778	6,964 /tn	109,681	0.00%
					Finish- Top of Wall & Curb	219.6 sf	12	1,082					4.93 /sf	1,082	808	9 /sf	1,890	0.00%
					Pump Place Walls	203.85 cy	285	30,312			1,467		155.89 /cy	31,779	22,868	268 /cy	54,647	0.00%
					4500 psi Concrete	203.85 cy			42,809				210.00 /cy	42,809	22,403	320 /cy	65,212	0.00%
					Grind/Patch Walls	5364.15 sf	429	38,434	188				7.20 /sf	38,622	28,818	13 /sf	67,440	0.00%
					Liquid Curing Compounds	5364.15 sf	16	1,442	4,224				1.06 /sf	5,666	3,288	2 /sf	8,954	0.00%
					Div. 03 Concrete	5,364.150 hsf	2,653	248,148	138,414		1,467		72.34 /hsf	388,029	257,406	120.32 /hsf	645,435	0.01%
					Foundation Wall Foundation Wall	203.850 cy	2,653	248,148	138,414		1,467		1,903.51 /cy	388,029	257,406	3,166.23 /cy	645,435	0.01%
				Slab	Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	1254.75 sf	427	38,518	1,910				32.22 /sf	40,429	29,746	56 /sf	70,175	0.00%
					S-O-G Const Joints > 1'	2352.75 sf	847	76,473	3,582				34.03 /sf	80,055	58,947	59 /sf	139,002	0.00%
					Strip & Oil SOG Form	3607.5 sf	18	1,616	253				0.52 /sf	1,868	1,339	1 /sf	3,208	0.00%
					SOG Rebar	109.8 tn	1,647	168,837	207,522				3,427.68 /tn	376,359	232,267	5,543 /tn	608,626	0.01%
					Mesh Support - bricks	1820 ea	4	373	936				0.72 /ea	1,310	763	1 /ea	2,073	0.00%
					Finish- Hard Trowel	15684.75 sf	361	32,308					2.06 /sf	32,308	24,142	4 /sf	56,451	0.00%
					Pump Place Slab on Grade	1741.05 cy	2,089	221,904			5,014		130.33 /cy	226,918	164,388	225 /cy	391,306	0.01%
					4500 psi Concrete	1741.05 cy			365,621				210.00 /cy	365,621	191,344	320 /cy	556,964	0.01%
					Liquid Curing Compounds	15684.75 sf	47	4,215	12,352				1.06 /sf	16,567	9,614	2 /sf	26,180	0.00%
					Seal Floors	15684.75 sf	78	7,025	3,294				0.66 /sf	10,319	6,973	1 /sf	17,292	0.00%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Div. 03 Concrete	15,684.750 hsf	5,518	551,270	595,469		5,014		73.43 /hsf	1,151,754	719,523	119.31 /hsf	1,871,277	0.04%
					Slab Slab	1,741.050 cy	5,518	551,270	595,469		5,014		661.53 /cy	1,151,754	719,523	1,074.80 /cy	1,871,277	0.04%
					630. EB3 UV AOP Electric Building	15,684.750 sf	16,178	1,617,306	1,088,786	5,006,886	7,158		492.21 /sf	7,720,136	3,443,553	711.75 /sf	11,163,689	0.25%
		640.			EB4 MF/Ozone/BAC Electrical Building													
			Building		Building													
				Div. 04	Masonry													
					Interior Staging over 10'	7899.6 sf	39	4,079	3,950				1.02 /sf	8,028	4,929	2 /sf	12,957	0.00%
					Staging to 30'	7899.6 sf	39	4,079	5,925				1.27 /sf	10,003	5,963	2 /sf	15,966	0.00%
					Rub Block	7899.6 sf	105	10,874					1.38 /sf	10,874	7,956	2 /sf	18,830	0.00%
					Mortar	569.7 cf			4,445				7.80 /cf	4,445	2,326	12 /cf	6,770	0.00%
					Mortar	953.25 cf			7,437				7.80 /cf	7,437	3,892	12 /cf	11,329	0.00%
					Grout Fill 10" Block Cells	4886.7 cf	1,466	151,382	31,043				37.33 /cf	182,424	127,011	63 /cf	309,435	0.01%
					Grout Fill 10"Lintel Block	43.8 cf	13	1,357	278				37.33 /cf	1,635	1,138	63 /cf	2,774	0.00%
					Grout Fill 10" Bond Beam	65.7 cf	20	2,035	417				37.33 /cf	2,453	1,708	63 /cf	4,160	0.00%
					Dur-O-Wall 10"	6420.45 lf			2,966				0.46 /lf	2,966	1,552	1 /lf	4,519	0.00%
					Wall Ties	9138 ea	122	12,578	1,151				1.50 /ea	13,730	9,806	3 /ea	23,535	0.00%
					Extruded Control Joints 1/2"	766.95 lf	4	452	1,796				2.93 /lf	2,248	1,271	5 /lf	3,519	0.00%
					Masonry Rebar # 5	37263.15 lbs	447	46,174	26,233				1.94 /lbs	72,407	47,514	3 /lbs	119,921	0.00%
					Masonry Rebar # 5	142.35 lbs	2	176	100				1.94 /lbs	277	182	3 /lbs	458	0.00%
					Standard Brick	52855 ea	2,114	218,319	55,498				5.18 /ea	273,817	188,786	9 /ea	462,603	0.01%
					10" Block Bond Beam	274 ea	23	2,363	6,286				31.57 /ea	8,649	5,019	50 /ea	13,668	0.00%
					10" Block Lintels	99 ea	8	854	2,271				31.57 /ea	3,125	1,813	50 /ea	4,938	0.00%
					10" Fire Rated 3 hr	8108 ea	677	69,926	57,891				15.76 /ea	127,817	81,461	26 /ea	209,279	0.00%
					Div. 04 Masonry	7,899.600 vsf	5,081	524,647	207,688				92.71 /vsf	732,335	492,327	155.03 /vsf	1,224,662	0.03%
				Div. 05 -15	Div 5/6/7/8/9/10/11/12/22/23													
					Div 5 - \$/SF	10956.45 sf				620,573			56.64 /sf	620,573	208,413	76 /sf	828,986	0.02%
					Div 6 - \$/SF	10956.45 sf				18,845			1.72 /sf	18,845	6,329	2 /sf	25,174	0.00%
					Div 7 - \$/SF	10956.45 sf				448,448			40.93 /sf	448,448	150,606	55 /sf	599,054	0.01%
					Div 8 - \$/SF	10956.45 sf				100,361			9.16 /sf	100,361	33,705	12 /sf	134,066	0.00%
					Div 9 - \$/SF	10956.45 sf				394,432			36.00 /sf	394,432	132,466	48 /sf	526,898	0.01%
					Div 10 - \$/SF	10956.45 sf				21,036			1.92 /sf	21,036	7,065	3 /sf	28,101	0.00%
					Div 11 - \$/SF	10956.45 sf				10,409			0.95 /sf	10,409	3,496	1 /sf	13,904	0.00%
					Div 12 - \$/SF	10956.45 sf				4,054			0.37 /sf	4,054	1,361	0 /sf	5,415	0.00%
					Div 22 - \$/SF	10956.45 sf				66,944			6.11 /sf	66,944	22,482	8 /sf	89,426	0.00%
					Div 23 - \$/SF	10956.45 sf				642,815			58.67 /sf	642,815	215,882	78 /sf	858,697	0.02%
					Div. 05 -15 Div 5/6/7/8/9/10/11/12/22/23	10,956.450 hsf				2,327,917			212.47 /hsf	2,327,917	781,806	283.83 /hsf	3,109,723	0.07%
				Div. 25	Integrated Automation (I&C)													
					I&C	10956.45 sf				317,956			29.02 /sf	317,956	106,782	39 /sf	424,738	0.01%
					Div. 25 Integrated Automation (I&C)	150.000 mgd				317,956			2,119.71 /mgd	317,956	106,782	2,831.59 /mgd	424,738	0.01%
				Div. 26	Electrical													
					Electrical	10956.45 sf				851,645			77.73 /sf	851,645	286,016	104 /sf	1,137,661	0.03%
					Div. 26 Electrical	150.000 mgd				851,645			5,677.63 /mgd	851,645	286,016	7,584.40 /mgd	1,137,661	0.03%
					Building Building	10,956.450 hsf	5,081	524,647	207,688	3,497,518			386.06 /hsf	4,229,853	1,666,931	538.20 /hsf	5,896,783	0.13%
			Footing		Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	1972.2 sf	394	35,613	3,003				19.58 /sf	38,616	28,180	34 /sf	66,766	0.00%
					Keyway 4"	657.45 lf	33	2,968	324				5.01 /lf	3,292	2,385	9 /lf	5,677	0.00%
					Waterstop 6" Bulb	657.45 lf	66	5,889	3,811				14.75 /lf	9,700	6,395	24 /lf	16,095	0.00%
					Strip & Oil Footing Forms	1972.2 sf	10	883	138				0.52 /sf	1,021	732	1 /sf	1,754	0.00%
					Footing Rebar	13.69 tn	274	28,068	25,875				3,940.31 /tn	53,943	34,099	6,431 /tn	88,042	0.00%
					Pump Place Wall Footings	109.5 cy	61	6,455			526		63.75 /cy	6,980	4,982	109 /cy	11,963	0.00%
					4500 psi Concrete	109.5 cy			22,995				210.00 /cy	22,995	12,034	320 /cy	35,029	0.00%
					Div. 03 Concrete	1,972.200 hsf	837	79,876	56,146		526		69.24 /hsf	136,548	88,777	114.25 /hsf	225,325	0.01%
					Footing Footing	109.500 cy	837	79,876	56,146		526		1,247.01 /cy	136,548	88,777	2,057.76 /cy	225,325	0.01%
			Foundation Wall		Foundation Wall													
				Div. 03	Concrete													
					Keyway 4"	98.55 lf	5	445	49				5.01 /lf	494	358	9 /lf	851	0.00%
					Rented Form System 16'->	3944.4 sf	986	89,033	41,416				33.07 /sf	130,449	88,120	55 /sf	218,570	0.00%
					Wall Bulkhead Forms	197.25 sf	108	9,795	1,036				54.91 /sf	10,831	7,852	95 /sf	18,683	0.00%
					Waterstop 6" Bulb	197.25 lf	20	1,767	1,143				14.75 /lf	2,910	1,919	24 /lf	4,829	0.00%
					Strip & Oil Wall Forms	3944.4 sf	20	1,767	276				0.52 /sf	2,043	1,465	1 /sf	3,507	0.00%
					Hot Water Charge	142.35 cy			1,196				8.40 /cy	1,196	626	13 /cy	1,822	0.00%
					Wall Rebar	10.95 tn	252	25,818	20,696				4,247.86 /tn	46,514	29,741	6,964 /tn	76,255	0.00%
					Finish- Top of Wall & Curb	164.4 sf	9	810					4.93 /sf	810	605	9 /sf	1,415	0.00%
					Pump Place Walls	142.35 cy	199	21,167			1,025		155.89 /cy	22,192	15,969	268 /cy	38,161	0.00%
					4500 psi Concrete	142.35 cy			29,894				210.00 /cy	29,894	15,644	320 /cy	45,538	0.00%
					Grind/Patch Walls	3944.4 sf	316	28,262	138				7.20 /sf	28,400	21,191	13 /sf	49,591	0.00%
					Liquid Curing Compounds	3944.4 sf	12	1,060	3,106				1.06 /sf	4,166	2,418	2 /sf	6,584	0.00%
					Div. 03 Concrete	3,944.400 hsf	1,927	179,923	98,950		1,025		70.96 /hsf	279,897	185,907	118.09 /hsf	465,804	0.01%
					Foundation Wall Foundation Wall	142.350 cy	1,927	179,923	98,950		1,025		1,966.26 /cy	279,897	185,907	3,272.25 /cy	465,804	0.01%
			Slab		Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1"	876.6 sf	298	26,910	1,335				32.22 /sf	28,244	20,781	56 /sf	49,026	0.00%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Continuous Footing Forms > 12"	6991.35 sf	1,398	126,247	10,644				19.58 /sf	136,891	99,789	34 /sf	236,681	0.01%
					Keyway 4"	1747.8 lf	87	7,890	863				5.01 /lf	8,753	6,340	9 /lf	15,093	0.00%
					Strip & Oil Footing Forms	6991.35 sf	35	3,131	489				0.52 /sf	3,621	2,596	1 /sf	6,217	0.00%
					Footing Rebar	29.7 tn	594	60,892	56,133				3,940.24 /tn	117,025	73,976	6,431 /tn	191,001	0.00%
					Truck Place Wall Footings	388.05 cy	514	54,611					140.73 /cy	54,611	39,804	243 /cy	94,415	0.00%
					4000 psi Concrete	388.05 cy			81,491				210.00 /cy	81,491	42,647	320 /cy	124,138	0.00%
					Div. 03 Concrete	6,991.350 hsf	2,629	252,771	149,620				57.56 /hsf	402,391	265,152	95.48 /hsf	667,544	0.02%
				Div. 25	Integrated Automation (I&C)													
					Pull Wire	34956.6 lf	105	10,916	1,269				0.35 /lf	12,185	8,642	1 /lf	20,827	0.00%
					Sch 80 PVC PVC Conduit 4"	34956.6 lf	6,432	669,515	176,181				24.19 /lf	845,696	581,539	41 /lf	1,427,235	0.03%
					Sch 80 PVC 45 Degree Elbow 4"	198 ea	198	20,610	5,652				132.64 /ea	26,262	18,021	224 /ea	44,284	0.00%
					Intermediate Spacer 1-1/2" Space 4"	6992 ea	280	29,112	7,796				5.28 /ea	36,908	25,358	9 /ea	62,266	0.00%
					Div. 25 Integrated Automation (I&C)	150.000 mgd	7,015	730,153	190,898				6,140.34 /mgd	921,051	633,561	10,364.08 /mgd	1,554,612	0.04%
				Div. 31	Earthwork													
					Excavate Footings Haul Offsite	1941.9 cy	117	14,348			5,190		10.06 /cy	19,538	13,012	17 /cy	32,550	0.00%
					Fill Gravel Process	1359.9 cy			66,825				49.14 /cy	66,825	34,972	75 /cy	101,798	0.00%
					Bldg Fill Gravel	1359.9 cy	165	18,831	65,683		5,895		66.48 /cy	90,409	51,084	104 /cy	141,493	0.00%
					Div. 31 Earthwork	1,359.900 cy	282	33,178	132,509		11,085		129.99 /cy	176,772	99,069	202.84 /cy	275,841	0.01%
					Duct Bank Duct Bank	34,956.600 lf	9,926	1,016,103	473,027		11,085		42.92 /lf	1,500,214	997,782	71.46 /lf	2,497,996	0.06%
					682. Duct Bank - SUB-EB4	34,956.600 lf	9,926	1,016,103	473,027		11,085		42.92 /lf	1,500,214	997,782	71.46 /lf	2,497,996	0.06%
					007. - EIPd/DB Electrical Buildings, Pads & Ductbanks	150.000 MGD	126,782	12,597,213	9,020,776	192,378,096	85,306		1,427,209.27 /MGD	214,081,391	78,640,510	1,951,479.34 /MGD	292,721,901	6.63%
008. - Yard Piping					Yard Piping													
		010.-020			Filtrate Pump to MBR Filtrate Tank Piping													
			Yard Piping		Yard Piping													
				Div. 40	Process Integration (Process Piping)													
					Trench Excav & Lay Pipe 10-12"	300 lf	498	58,914			6,886		219.33 /lf	65,800	45,980	373 /lf	111,780	0.00%
					CY Trench Excavation (Volume Calculation Only)	1,333.200 cy							/cy			/cy		
					Utility Bed Sand	111 cy	13	1,484	7,481		689		86.97 /cy	9,654	5,354	135 /cy	15,008	0.00%
					Utility Cover Gravel-Process	85.2 cy	10	1,139	3,936		529		65.78 /cy	5,605	3,165	103 /cy	8,769	0.00%
					Spoils to Waste	623.7 cy	75	7,641		14,969	1,707	6,237	48.99 /cy	30,554	14,793	73 /cy	45,346	0.00%
					Backfill Trench-Backhoe/Truck	1137 cy	136	16,220			2,861		16.78 /cy	19,081	13,163	28 /cy	32,244	0.00%
					Trench Box 12' Deep (piggy back)	300 lf					7,200		24.00 /lf	7,200	3,804	37 /lf	11,004	0.00%
					Prestressed Conc Pipe 84	311.4 lf	1,071		230,598				740.52 /lf	230,598	131,929	1,164 /lf	362,527	0.01%
					Div. 40 Process Integration (Process Piping)	150.000 mgd	1,804	85,399	242,015	14,969	19,872	6,237	2,456.61 /mgd	368,492	218,187	3,911.19 /mgd	586,679	0.01%
					Yard Piping Yard Piping	300.000 lf	1,804	85,399	242,015	14,969	19,872	6,237	1,228.31 /lf	368,492	218,187	1,955.60 /lf	586,679	0.01%
					010.-020 Filtrate Pump to MBR Filtrate Tank Piping	300.000 lf	1,804	85,399	242,015	14,969	19,872	6,237	1,228.31 /lf	368,492	218,187	1,955.60 /lf	586,679	0.01%
		020.-040			MBR Filtrate to Ozone Piping													
			Yard Piping		Yard Piping													
				Div. 40	Process Integration (Process Piping)													
					Trench Excav & Lay Pipe 10-12"	1215.5 lf	2,016	238,701			27,899		219.33 /lf	266,600	186,294	373 /lf	452,895	0.01%
					CY Trench Excavation (Volume Calculation Only)	5,401.682 cy							/cy			/cy		
					Utility Bed Sand	449.735 cy	54	6,014	30,309		2,793		86.98 /cy	39,115	21,693	135 /cy	60,808	0.00%
					Utility Cover Gravel-Process	345.202 cy	41	4,616	15,948		2,144		65.78 /cy	22,708	12,822	103 /cy	35,530	0.00%
					Spoils to Waste	2527.025 cy	303	30,959		60,649	6,915	25,270	48.99 /cy	123,793	59,935	73 /cy	183,728	0.00%
					Backfill Trench-Backhoe/Truck	4606.745 cy	553	65,718			11,593		16.78 /cy	77,311	53,332	28 /cy	130,643	0.00%
					Trench Box 12' Deep (piggy back)	1215.5 lf					29,172		24.00 /lf	29,172	15,413	37 /lf	44,585	0.00%
					Prestressed Conc Pipe 84	1261.689 lf	4,340		934,306				740.52 /lf	934,306	534,531	1,164 /lf	1,468,837	0.03%
					Div. 40 Process Integration (Process Piping)	150.000 mgd	7,308	346,009	980,563	60,649	80,515	25,270	9,953.37 /mgd	1,493,005	884,021	15,846.84 /mgd	2,377,026	0.05%
					Yard Piping Yard Piping	1,215.500 lf	7,308	346,009	980,563	60,649	80,515	25,270	1,228.31 /lf	1,493,005	884,021	1,955.60 /lf	2,377,026	0.05%
					020.-040 MBR Filtrate to Ozone Piping	1,215.500 lf	7,308	346,009	980,563	60,649	80,515	25,270	1,228.31 /lf	1,493,005	884,021	1,955.60 /lf	2,377,026	0.05%
		080.-050			RO Feed Tank to BAC Backwash Piping													
			Yard Piping		Yard Piping													
				Div. 31	Earthwork													
					Trench Excav & Lay Pipe 8-10'	1000.04 lf	224	26,520			3,100		29.62 /lf	29,620	20,698	50 /lf	50,318	0.00%
					CY Trench Excavation (Volume Calculation Only)	2,333.350 cy							/cy			/cy		
					Utility Bed Stone 1/2"	259.325 cy	31	3,468	11,981		1,610		65.78 /cy	17,059	9,632	103 /cy	26,691	0.00%
					Spoils to Waste	615.595 cy	74	7,542			1,685		14.99 /cy	9,226	6,417	25 /cy	15,643	0.00%
					Backfill Trench-Backhoe/Truck	2074.025 cy	249	29,587			5,219		16.78 /cy	34,806	24,011	28 /cy	58,817	0.00%
					Trench Box 10' Deep	1000.04 lf					5,000		5.00 /lf	5,000	2,642	8 /lf	7,642	0.00%
					Div. 31 Earthwork	2,333.350 cy	578	67,117	11,981		16,614		41.02 /cy	95,712	63,400	68.19 /cy	159,112	0.00%
				Div. 40	Process Integration (Process Piping)													
					Prestressed Conc Pipe 42	1000.04 lf	1,650		370,275				370.26 /lf	370,275	211,105	581 /lf	581,380	0.01%
					PCCP 45 deg ell 42	9 ea	2		4,500				500.00 /ea	4,500	2,379	764 /ea	6,879	0.00%
					PCCP 90 deg ell 42	4 ea	1		2,280				570.00 /ea	2,280	1,204	871 /ea	3,484	0.00%
					Div. 40 Process Integration (Process Piping)	150.000 mgd	1,653		377,055				2,513.70 /mgd	377,055	214,687	3,944.95 /mgd	591,742	0.01%
					Yard Piping Yard Piping	1,000.000 lf	2,231	67,117	389,036		16,614		472.77 /lf	472,767	278,087	750.85 /lf	750,854	0.02%
					080.-050 RO Feed Tank to BAC Backwash Piping	1,000.000 lf	2,231	67,117	389,036		16,614		472.77 /lf	472,767	278,087	750.85 /lf	750,854	0.02%
		130.-140			RO Feed Pump to RO (1st Stage) Piping													
			Yard Piping		Yard Piping													
				Div. 31	Earthwork													
					Trench Excav & Lay Pipe 8-10'	579.945 lf	130	15,380			1,798		29.62 /lf	17,177	12,003	50 /lf	29,180	0.00%
					CY Trench Excavation (Volume Calculation Only)	1,718.560 cy							/cy			/cy		
					Utility Bed Stone 1/2"	171.81 cy	21	2,298	7,938		1,067		65.78 /cy	11,302	6,382	103 /cy	17,684	0.00%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Spoils to Waste	593.63 cy	71	7,273			1,624		14.99 /cy	8,897	6,188	25 /cy	15,085	0.00%
					Backfill Trench-Backhoe/Truck	1546.635 cy	186	22,064			3,892		16.78 /cy	25,956	17,905	28 /cy	43,861	0.00%
					Trench Box 10' Deep	580 lf					2,900		5.00 /lf	2,900	1,532	8 /lf	4,432	0.00%
				Div. 40	Div. 31 Earthwork	1,718.560 cy	407	47,014	7,938		11,281		38.54 /cy	66,232	44,011	64.15 /cy	110,243	0.00%
					Process Integration (Process Piping)													
					Prestressed Conc Pipe 60	579.945 lf	1,450		306,756				528.94 /lf	306,756	175,761	832 /lf	482,517	0.01%
					PCCP 45 deg ell 60	4 ea	1		2,700				675.00 /ea	2,700	1,424	1,031 /ea	4,124	0.00%
					PCCP 90 deg ell 60	2 ea	1		1,500				750.00 /ea	1,500	790	1,145 /ea	2,290	0.00%
					Div. 40 Process Integration (Process Piping)	150.000 mgd	1,451		310,956				2,073.04 /mgd	310,956	177,975	3,259.54 /mgd	488,931	0.01%
					Yard Piping Yard Piping	579.950 lf	1,859	47,014	318,894		11,281		650.38 /lf	377,188	221,985	1,033.15 /lf	599,174	0.01%
					130.-140 RO Feed Pump to RO (1st Stage) Piping	579.950 lf	1,859	47,014	318,894		11,281		650.38 /lf	377,188	221,985	1,033.15 /lf	599,174	0.01%
		140.-190			RO (1st Stage) to UV/AOP Piping													
			Yard Piping		Yard Piping													
				Div. 31	Earthwork													
					Trench Excav & Lay Pipe 10-12'	99.935 lf	28	3,313			387		37.02 /lf	3,700	2,585	63 /lf	6,285	0.00%
					CY Trench Excavation (Volume Calculation Only)	414.805 cy							/cy			/cy		
					Utility Bed Stone 1/2"	37.03 cy	4	495	1,711		230		65.78 /cy	2,436	1,375	103 /cy	3,811	0.00%
					Spoils to Waste	109.825 cy	13	1,345			301		14.99 /cy	1,646	1,145	25 /cy	2,791	0.00%
					Backfill Trench-Backhoe/Truck	377.775 cy	45	5,389			951		16.78 /cy	6,340	4,374	28 /cy	10,713	0.00%
					Trench Box 12' Deep (piggy back)	100 lf					2,400		24.00 /lf	2,400	1,268	37 /lf	3,668	0.00%
				Div. 40	Div. 31 Earthwork	414.810 cy	91	10,543	1,711		4,268		39.83 /cy	16,522	10,747	65.74 /cy	27,269	0.00%
					Process Integration (Process Piping)													
					Prestressed Conc Pipe 74	99.935 lf	586		63,432				634.73 /lf	63,432	39,345	1,028 /lf	102,777	0.00%
					PCCP 45 deg ell 72	4 ea	1		2,800				700.00 /ea	2,800	1,476	1,069 /ea	4,276	0.00%
					PCCP 90 deg ell 72	2 ea	1		1,600				800.00 /ea	1,600	843	1,221 /ea	2,443	0.00%
					Div. 40 Process Integration (Process Piping)	150.000 mgd	587		67,832				452.21 /mgd	67,832	41,664	729.97 /mgd	109,496	0.00%
					Yard Piping Yard Piping	100.000 lf	678	10,543	69,543		4,268		843.54 /lf	84,353	52,411	1,367.64 /lf	136,764	0.00%
					140.-190 RO (1st Stage) to UV/AOP Piping	100.000 lf	678	10,543	69,543		4,268		843.54 /lf	84,353	52,411	1,367.64 /lf	136,764	0.00%
		148.-170			RO (3rd Stage) to Brine to Ocean Outfall Piping													
			Yard Piping		Yard Piping													
				Div. 31	Earthwork													
					Trench Excav & Lay Pipe 10-12'	800.055 lf	224	26,521			3,100		37.02 /lf	29,621	20,698	63 /lf	50,319	0.00%
					CY Trench Excavation (Volume Calculation Only)	2,933.420 cy							/cy			/cy		
					Utility Bed Stone 1/2"	266.685 cy	32	3,566	12,321		1,656		65.78 /cy	17,543	9,906	103 /cy	27,449	0.00%
					Spoils to Waste	848.47 cy	102	10,395			2,322		14.99 /cy	12,717	8,845	25 /cy	21,561	0.00%
					Backfill Trench-Backhoe/Truck	2666.735 cy	320	38,043			6,711		16.78 /cy	44,753	30,873	28 /cy	75,626	0.00%
					Trench Box 12' Deep (piggy back)	801 lf					19,224		24.00 /lf	19,224	10,157	37 /lf	29,381	0.00%
					Div. 31 Earthwork	2,933.420 cy	678	78,525	12,321		33,012		42.22 /cy	123,858	80,478	69.66 /cy	204,336	0.00%
				Div. 40	Process Integration (Process Piping)													
					Prestressed Conc Pipe 60	801 lf	2,003		423,681				528.94 /lf	423,681	242,755	832 /lf	666,436	0.02%
					PCCP 45 deg ell 60	9 ea	2		6,075				675.00 /ea	6,075	3,203	1,031 /ea	9,278	0.00%
					PCCP 90 deg ell 60	4 ea	1		3,000				750.00 /ea	3,000	1,581	1,145 /ea	4,581	0.00%
					Div. 40 Process Integration (Process Piping)	150.000 mgd	2,006		432,756				2,885.04 /mgd	432,756	247,538	4,535.30 /mgd	680,294	0.02%
					Yard Piping Yard Piping	800.000 lf	2,684	78,525	445,077		33,012		695.77 /lf	556,614	328,017	1,105.79 /lf	884,631	0.02%
					148.-170 RO (3rd Stage) to Brine to Ocean Outfall Piping	800.000 lf	2,684	78,525	445,077		33,012		695.77 /lf	556,614	328,017	1,105.79 /lf	884,631	0.02%
		190.-260			UV/AOP to Wetwell Piping													
			Yard Piping		Yard Piping													
				Div. 31	Earthwork													
					Trench Excav & Lay Pipe 10-12'	260.015 lf	73	8,619			1,007		37.02 /lf	9,627	6,727	63 /lf	16,354	0.00%
					CY Trench Excavation (Volume Calculation Only)	1,078.585 cy							/cy			/cy		
					Utility Bed Stone 1/2"	96.255 cy	12	1,287	4,447		598		65.78 /cy	6,332	3,575	103 /cy	9,907	0.00%
					Spoils to Waste	285.43 cy	34	3,497			781		14.99 /cy	4,278	2,975	25 /cy	7,253	0.00%
					Backfill Trench-Backhoe/Truck	982.215 cy	118	14,012			2,472		16.78 /cy	16,484	11,371	28 /cy	27,855	0.00%
					Trench Box 12' Deep (piggy back)	261 lf					6,264		24.00 /lf	6,264	3,310	37 /lf	9,574	0.00%
					Div. 31 Earthwork	1,078.590 cy	236	27,415	4,447		11,122		39.85 /cy	42,984	27,958	65.77 /cy	70,942	0.00%
				Div. 40	Process Integration (Process Piping)													
					Prestressed Conc Pipe 74	260.015 lf	1,524		165,039				634.73 /lf	165,039	102,370	1,028 /lf	267,410	0.01%
					PCCP 45 deg ell 72	4 ea	1		2,800				700.00 /ea	2,800	1,476	1,069 /ea	4,276	0.00%
					PCCP 90 deg ell 72	2 ea	1		1,600				800.00 /ea	1,600	843	1,221 /ea	2,443	0.00%
					Div. 40 Process Integration (Process Piping)	150.000 mgd	1,525		169,439				1,129.60 /mgd	169,439	104,689	1,827.52 /mgd	274,128	0.01%
					Yard Piping Yard Piping	260.000 lf	1,762	27,415	173,886		11,122		817.01 /lf	212,423	132,647	1,327.19 /lf	345,070	0.01%
					190.-260 UV/AOP to Wetwell Piping	260.000 lf	1,762	27,415	173,886		11,122		817.01 /lf	212,423	132,647	1,327.19 /lf	345,070	0.01%
		270.-280			Effluent Pump to Distribution Piping													
			Yard Piping		Yard Piping													
				Div. 31	Earthwork													
					Trench Excav & Lay Pipe 10-12'	1160.005 lf	325	38,453			4,494		37.02 /lf	42,947	30,011	63 /lf	72,958	0.00%
					CY Trench Excavation (Volume Calculation Only)	4,810.220 cy							/cy			/cy		
					Utility Bed Stone 1/2"	429.525 cy	52	5,744	19,844		2,667		65.78 /cy	28,255	15,954	103 /cy	44,210	0.00%
					Spoils to Waste	1272.82 cy	153	15,594			3,483		14.99 /cy	19,077	13,268	25 /cy	32,345	0.00%
					Backfill Trench-Backhoe/Truck	4380.695 cy	526	62,493			11,024		16.78 /cy	73,517	50,715	28 /cy	124,232	0.00%
					Trench Box 12' Deep (piggy back)	1160.005 lf					27,840		24.00 /lf	27,840	14,709	37 /lf	42,549	0.00%
					Div. 31 Earthwork	4,810.220 cy	1,055	122,284	19,844		49,508		39.84 /cy	191,636	124,657	65.75 /cy	316,294	0.01%
				Div. 40	Process Integration (Process Piping)													

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Prestressed Conc Pipe 74	1160.005 lf	6,798		736,290				634.73 /lf	736,290	456,705	1,028 /lf	1,192,994	0.03%
					PCCP 45 deg ell 72	9 ea	2		6,300				700.00 /ea	6,300	3,321	1,069 /ea	9,621	0.00%
					PCCP 90 deg ell 72	4 ea	1		3,200				800.00 /ea	3,200	1,685	1,221 /ea	4,885	0.00%
					Div. 40 Process Integration (Process Piping)	150.000 mgd	6,801		745,790				4,971.93 /mgd	745,790	461,710	8,050.00 /mgd	1,207,500	0.03%
					Yard Piping Yard Piping	1,160.000 lf	7,856	122,284	765,634		49,508		808.13 /lf	937,426	586,368	1,313.62 /lf	1,523,794	0.03%
					270.-280 Effluent Pump to Distribution Piping	1,160.000 lf	7,856	122,284	765,634		49,508		808.13 /lf	937,426	586,368	1,313.62 /lf	1,523,794	0.03%
					Yard Piping Percentage Adder													
					Unidentified Process Yard Pipe													
					Unidentified Process Yard Pipe													
					Div. 40 Process Integration (Process Piping)													
					Estimate Placeholder - Additional Unidentified Process Yard Piping	1 ls			32,154,701			299,322	32,454,022.29 /ls	32,454,022	16,984,460	49,438,482 /ls	49,438,482	1.12%
					Estimate Placeholder - Additional Unidentified Yard Pipe Installation Labor/Equip.	1 ls	74,510	7,451,026		718,374	2,148,871		10,318,270.41 /ls	10,318,270	6,629,632	16,947,902 /ls	16,947,902	0.38%
					Div. 40 Process Integration (Process Piping)	150.000 mgd	74,510	7,451,026	32,154,701	718,374	2,148,871	299,322	285,148.62 /mgd	42,772,293	23,614,092	442,575.90 /mgd	66,386,385	1.50%
					Unidentified Process Yard Pipe Unidentified Process Yard Pipe	1.000 ls	74,510	7,451,026	32,154,701	718,374	2,148,871	299,322	42,772,292.70 /ls	42,772,293	23,614,092	66,386,384.83 /ls	66,386,385	1.50%
					500. Yard Piping Percentage Adder	1.000 ls	74,510	7,451,026	32,154,701	718,374	2,148,871	299,322	42,772,292.70 /ls	42,772,293	23,614,092	66,386,384.83 /ls	66,386,385	1.50%
					008. - Yard Piping Yard Piping	150.000 MGD	100,691	8,235,331	35,539,347	793,991	2,375,063	330,829	315,163.75 /MGD	47,274,562	26,315,815	490,602.51 /MGD	73,590,377	1.67%
					Membrane Bioreactor													
					Filtrate Pump													
					Feed Pump													
					Div. 46 Water and Wastewater Equipment													
					Filtrate Pumps 24 DUTY + 1 SB = 150 MGD	25 ea	6,000	625,464	150,000		49,856	12,500,000	533,012.78 /ea	13,325,320	7,103,629	817,158 /ea	20,428,948	0.46%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	6,000	625,464	150,000	49,856		12,500,000	88,835.46 /mgd	13,325,320	7,103,629	136,192.99 /mgd	20,428,948	0.46%
					Feed Pump Feed Pump	25.000 ea	6,000	625,464	150,000	49,856		12,500,000	533,012.78 /ea	13,325,320	7,103,629	817,157.93 /ea	20,428,948	0.46%
					010. Filtrate Pump	150.000 MGD	6,000	625,464	150,000		49,856	12,500,000	88,835.46 /MGD	13,325,320	7,103,629	136,192.99 /MGD	20,428,948	0.46%
					Membrane Tanks for MBR													
					Elevated Slab													
					Div. 03 Concrete													
					Scaffolding - Elevated Deck Shoring from 10' to 24' height	71974 sf	1,439	137,010	61,178				2.75 /sf	198,188	129,338	5 /sf	327,526	0.01%
					Form Suspended Slab 15-up	71974 sf	17,994	1,624,597	169,283				24.92 /sf	1,793,880	1,301,035	43 /sf	3,094,915	0.07%
					Slab Edge Form > 1'	3886.596 sf	972	87,728	11,660				25.57 /sf	99,388	71,574	44 /sf	170,962	0.00%
					Pour Strips	75860.596 lf	3,793	339,772	318,615				8.68 /lf	658,387	420,630	14 /lf	1,079,016	0.02%
					Strip & Oil Suspended Slab Frm	71974 sf	360	32,236	5,038				0.52 /sf	37,275	26,725	1 /sf	63,999	0.00%
					Suspended Slab Rebar	503.818 tn	15,115	1,549,422	952,216				4,965.36 /tn	2,501,638	1,633,185	8,207 /tn	4,134,822	0.09%
					Finish- Hard Trowel	71974 sf	1,655	148,256					2.06 /sf	148,256	110,784	4 /sf	259,041	0.01%
					Pump Place Suspended Slab	5326.076 cy	6,924	735,401			27,806		143.30 /cy	763,207	550,701	247 /cy	1,313,908	0.03%
					4500 psi Concrete	5326.076 cy			1,118,476				210.00 /cy	1,118,476	585,342	320 /cy	1,703,818	0.04%
					Liquid Curing Compounds	71974 sf	216	19,342	56,680				1.06 /sf	76,021	44,115	2 /sf	120,137	0.00%
					Div. 03 Concrete	71,974.000 hsf	48,467	4,673,764	2,693,145		27,806		102.74 /hsf	7,394,715	4,873,430	170.45 /hsf	12,268,145	0.28%
					Elevated Slab Elevated Slab	5,326.080 cy	48,467	4,673,764	2,693,145		27,806		1,388.40 /cy	7,394,715	4,873,430	2,303.41 /cy	12,268,145	0.28%
					Footing													
					Div. 03 Concrete													
					Continuous Footing Forms > 12"	4476 sf	895	80,826	6,815				19.58 /sf	87,641	63,887	34 /sf	151,528	0.00%
					Keyway 4"	1492 lf	75	6,735	736				5.01 /lf	7,472	5,412	9 /lf	12,884	0.00%
					Waterstop 6" Bulb	1492 lf	149	13,365	8,648				14.75 /lf	22,013	14,512	24 /lf	36,525	0.00%
					Strip & Oil Footing Forms	4476 sf	22	2,005	313				0.52 /sf	2,318	1,662	1 /sf	3,980	0.00%
					Footing Rebar	27.602 tn	552	56,591	52,168				3,940.23 /tn	108,758	68,750	6,431 /tn	177,509	0.00%
					Pump Place Wall Footings	235.736 cy	131	13,896			1,131		63.75 /cy	15,028	10,726	109 /cy	25,754	0.00%
					4500 psi Concrete	235.736 cy			49,505				210.00 /cy	49,505	25,908	320 /cy	75,412	0.00%
					Div. 03 Concrete	4,476.000 hsf	1,824	173,418	118,184		1,131		65.40 /hsf	292,733	190,858	108.04 /hsf	483,591	0.01%
					Footing Footing	235.740 cy	1,824	173,418	118,184		1,131		1,241.76 /cy	292,733	190,858	2,051.38 /cy	483,591	0.01%
					Foundation Wall													
					Div. 03 Concrete													
					Keyway 4"	2198.768 lf	110	9,926	1,085				5.01 /lf	11,011	7,976	9 /lf	18,987	0.00%
					Rented Form System 16'->	84568 sf	21,142	1,908,869	887,964				33.07 /sf	2,796,833	1,889,302	55 /sf	4,686,135	0.11%
					Wall Bulkhead Forms	4143.832 sf	2,279	205,776	21,755				54.91 /sf	227,531	164,957	95 /sf	392,488	0.01%
					Waterstop 6" Bulb	4143.832 lf	414	37,120	24,018				14.75 /lf	61,137	40,306	24 /lf	101,443	0.00%
					Strip & Oil Wall Forms	84568 sf	423	37,877	5,920				0.52 /sf	43,797	31,401	1 /sf	75,198	0.00%
					Hot Water Charge	3213.584 cy			26,994				8.40 /cy	26,994	14,127	13 /cy	41,121	0.00%
					Wall Rebar	169.136 tn	3,890	398,785	319,667				4,247.78 /tn	718,452	459,379	6,964 /tn	1,177,831	0.03%
					Finish- Top of Wall & Curb	3551.856 sf	195	17,496					4.93 /sf	17,496	13,074	9 /sf	30,569	0.00%
					Pump Place Walls	3213.584 cy	4,499	477,850			23,129		155.89 /cy	500,978	360,509	268 /cy	861,487	0.02%
					4500 psi Concrete	3213.584 cy			674,853				210.00 /cy	674,853	353,177	320 /cy	1,028,029	0.02%
					Grind/Patch Walls	84568 sf	6,765	605,933	2,960				7.20 /sf	608,893	454,330	13 /sf	1,063,223	0.02%
					Liquid Curing Compounds	84568 sf	254	22,726	66,597				1.06 /sf	89,324	51,835	2 /sf	141,158	0.00%
					Div. 03 Concrete	84,568.000 hsf	39,972	3,722,357	2,031,813		23,129		68.32 /hsf	5,777,299	3,840,371	113.73 /hsf	9,617,670	0.22%
					Foundation Wall Foundation Wall	3,213.580 cy	39,972	3,722,357	2,031,813		23,129		1,797.78 /cy	5,777,299	3,840,371	2,992.82 /cy	9,617,670	0.22%
					Interior Tank Walls 1' Thk													
					Div. 03 Concrete													
					Keyway 4"	3213.6 lf	161	14,507	1,586				5.01 /lf	16,093	11,657	9 /lf	27,750	0.00%
					Rented Form System 16'->	123600 sf	30,900	2,789,899	1,297,800				33.07 /sf	4,087,699	2,761,302	55 /sf	6,849,001	0.16%
					Wall Bulkhead Forms	3090 sf	1,700	153,444	16,223				54.91 /sf	169,667	123,006	95 /sf	292,673	0.01%
					Waterstop 6" Bulb	6056.4 lf	606	54,252	35,103				14.75 /lf	89,355	58,909	24 /lf	148,264	0.00%
					Strip & Oil Wall Forms	123600 sf	618	55,359	8,652				0.52 /sf	64,011	45,894	1 /sf	109,905	0.00%
					Hot Water Charge	4696.8 cy			39,453				8.40 /cy	39,453	20,647	13 /cy	60,100	0.00%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Wall Rebar	247.2 tn	5,686	582,842	467,208				4,247.78 /tn	1,050,050	671,403	6,964 /tn	1,721,453	0.04%
					Finish- Top of Wall & Curb	2595.6 sf	143	12,785					4.93 /sf	12,785	9,554	9 /sf	22,339	0.00%
					Pump Place Walls	4696.8 cy	6,576	698,399			33,804		155.89 /cy	732,203	526,901	268 /cy	1,259,103	0.03%
					4500 psi Concrete	4696.8 cy			986,328				210.00 /cy	986,328	516,184	320 /cy	1,502,512	0.03%
					Grind/Patch Walls	123600 sf	9,888	885,599	4,326				7.20 /sf	889,925	664,023	13 /sf	1,553,948	0.04%
					Liquid Curing Compounds	123600 sf	371	33,216	97,335				1.06 /sf	130,551	75,759	2 /sf	206,309	0.00%
					Div. 03 Concrete	123,600.000 hsf	56,646	5,280,303	2,954,013		33,804		66.89 /hsf	8,268,120	5,485,238	111.27 /hsf	13,753,359	0.31%
					Interior Tank Walls 1' Thk Interior Tank Walls 1' Thk	4,696.800 cy	56,646	5,280,303	2,954,013		33,804		1,760.37 /cy	8,268,120	5,485,238	2,928.24 /cy	13,753,359	0.31%
			Slab		Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	5763.84 sf	1,960	176,938	8,775				32.22 /sf	185,713	136,642	56 /sf	322,355	0.01%
					S-O-G Const Joints > 1'	10807.2 sf	3,891	351,274	16,454				34.03 /sf	367,728	270,768	59 /sf	638,496	0.01%
					Strip & Oil SOG Form	16571.04 sf	83	7,422	1,160				0.52 /sf	8,582	6,153	1 /sf	14,735	0.00%
					SOG Rebar	504.336 tn	7,565	775,507	953,195				3,427.68 /tn	1,728,703	1,066,854	5,543 /tn	2,795,557	0.06%
					Mesh Support - bricks	8285.52 ea	17	1,699	4,263				0.72 /ea	5,962	3,475	1 /ea	9,437	0.00%
					Finish- Hard Trowel	72048 sf	1,657	148,409					2.06 /sf	148,409	110,898	4 /sf	259,307	0.01%
					Pump Place Slab on Grade	7997.328 cy	9,597	1,019,295			23,030		130.33 /cy	1,042,325	755,099	225 /cy	1,797,424	0.04%
					4500 psi Concrete	7997.328 cy			1,679,439				210.00 /cy	1,679,439	878,916	320 /cy	2,558,355	0.06%
					Liquid Curing Compounds	72048 sf	216	19,362	56,738				1.06 /sf	76,100	44,161	2 /sf	120,260	0.00%
					Seal Floors	72048 sf	360	32,270	15,130				0.66 /sf	47,400	32,031	1 /sf	79,430	0.00%
					Div. 03 Concrete	72,048.000 hsf	25,345	2,532,174	2,735,154		23,030		73.43 /hsf	5,290,359	3,304,997	119.30 /hsf	8,595,356	0.19%
					Slab Slab	7,997.330 cy	25,345	2,532,174	2,735,154		23,030		661.52 /cy	5,290,359	3,304,997	1,074.78 /cy	8,595,356	0.19%
					020-2. Membrane Tanks for MBR	72,048.000 hsf	172,255	16,382,017	10,532,310		108,899		375.07 /hsf	27,023,226	17,694,894	620.67 /hsf	44,718,120	1.01%
			020-3.		Bioreactor Tanks fro MBR													
					Elevated Slab													
				Div. 03	Elevated Slab Concrete													
					Scaffolding - Elevated Deck Shoring from 10' to 24' height	420000 sf	8,400	799,512	357,000				2.75 /sf	1,156,512	754,747	5 /sf	1,911,259	0.04%
					Form Suspended Slab 15-up	420000 sf	105,000	9,480,240	987,840				24.92 /sf	10,468,080	7,592,113	43 /sf	18,060,193	0.41%
					Slab Edge Form > 1'	22680 sf	5,670	511,933	68,040				25.57 /sf	579,973	417,665	44 /sf	997,638	0.02%
					Pour Strips	442680 lf	22,134	1,982,719	1,859,256				8.68 /lf	3,841,975	2,454,560	14 /lf	6,296,535	0.14%
					Strip & Oil Suspended Slab Frm	420000 sf	2,100	188,114	29,400				0.52 /sf	217,514	155,950	1 /sf	373,463	0.01%
					Suspended Slab Rebar	2940 tn	88,200	9,041,558	5,556,600				4,965.36 /tn	14,598,158	9,530,351	8,207 /tn	24,128,509	0.55%
					Finish- Hard Trowel	420000 sf	9,660	865,140					2.06 /sf	865,140	646,476	4 /sf	1,511,616	0.03%
					Pump Place Suspended Slab	31080 cy	40,404	4,291,390			162,258		143.30 /cy	4,453,648	3,213,584	247 /cy	7,667,232	0.17%
					4500 psi Concrete	31080 cy			6,526,800				210.00 /cy	6,526,800	3,415,730	320 /cy	9,942,530	0.23%
					Liquid Curing Compounds	420000 sf	1,260	112,868	330,750				1.06 /sf	443,618	257,432	2 /sf	701,051	0.02%
					Div. 03 Concrete	420,000.000 hsf	282,828	27,273,474	15,715,686		162,258		102.74 /hsf	43,151,419	28,438,608	170.45 /hsf	71,590,027	1.62%
					Elevated Slab Elevated Slab	31,080.000 cy	282,828	27,273,474	15,715,686		162,258		1,388.40 /cy	43,151,419	28,438,608	2,303.41 /cy	71,590,027	1.62%
					Footing													
				Div. 03	Footing Concrete													
					Continuous Footing Forms > 12"	8200.92 sf	1,640	148,089	12,486				19.58 /sf	160,575	117,054	34 /sf	277,628	0.01%
					Keyway 4"	2735.46 lf	137	12,349	1,350				5.01 /lf	13,699	9,923	9 /lf	23,622	0.00%
					Waterstop 6" Bulb	2735.46 lf	274	24,504	15,855				14.75 /lf	40,358	26,607	24 /lf	66,966	0.00%
					Strip & Oil Footing Forms	8200.92 sf	41	3,673	574				0.52 /sf	4,247	3,045	1 /sf	7,292	0.00%
					Footing Rebar	16.38 tn	328	33,583	30,958				3,940.24 /tn	64,541	40,799	6,431 /tn	105,340	0.00%
					Pump Place Wall Footings	455.91 cy	253	26,875			2,188		63.75 /cy	29,063	20,744	109 /cy	49,807	0.00%
					4500 psi Concrete	455.91 cy			95,741				210.00 /cy	95,741	50,105	320 /cy	145,846	0.00%
					Div. 03 Concrete	8,200.920 hsf	2,672	249,072	156,964		2,188		49.78 /hsf	408,225	268,277	82.49 /hsf	676,502	0.02%
					Footing Footing	455.910 cy	2,672	249,072	156,964		2,188		895.41 /cy	408,225	268,277	1,483.85 /cy	676,502	0.02%
					Foundation Wall													
				Div. 03	Foundation Wall Concrete													
					Keyway 4"	3832.92 lf	192	17,303	1,892				5.01 /lf	19,195	13,903	9 /lf	33,098	0.00%
					Rented Form System 16'->	147420 sf	36,855	3,327,564	1,547,910				33.07 /sf	4,875,474	3,293,455	55 /sf	8,168,930	0.19%
					Wall Bulkhead Forms	7223.58 sf	3,973	358,711	37,924				54.91 /sf	396,635	287,555	95 /sf	684,190	0.02%
					Waterstop 6" Bulb	7223.58 lf	722	64,707	41,868				14.75 /lf	106,575	70,262	24 /lf	176,837	0.00%
					Strip & Oil Wall Forms	147420 sf	737	66,028	10,319				0.52 /sf	76,347	54,738	1 /sf	131,086	0.00%
					Hot Water Charge	5601.96 cy			47,056				8.40 /cy	47,056	24,626	13 /cy	71,683	0.00%
					Wall Rebar	294.84 tn	6,781	695,167	557,248				4,247.78 /tn	1,252,414	800,795	6,964 /tn	2,053,209	0.05%
					Finish- Top of Wall & Curb	6191.64 sf	341	30,498					4.93 /sf	30,498	22,790	9 /sf	53,288	0.00%
					Pump Place Walls	5601.96 cy	7,843	832,994			40,318		155.89 /cy	873,312	628,444	268 /cy	1,501,756	0.03%
					4500 psi Concrete	5601.96 cy			1,176,412				210.00 /cy	1,176,412	615,662	320 /cy	1,792,074	0.04%
					Grind/Patch Walls	147420 sf	11,794	1,056,270	5,160				7.20 /sf	1,061,430	791,993	13 /sf	1,853,423	0.04%
					Liquid Curing Compounds	147420 sf	442	39,617	116,093				1.06 /sf	155,710	90,359	2 /sf	246,069	0.01%
					Div. 03 Concrete	147,420.000 hsf	69,680	6,488,860	3,541,881		40,318		68.32 /hsf	10,071,059	6,694,583	113.73 /hsf	16,765,642	0.38%
					Foundation Wall Foundation Wall	5,601.960 cy	69,680	6,488,860	3,541,881		40,318		1,797.77 /cy	10,071,059	6,694,583	2,992.82 /cy	16,765,642	0.38%
			Interior Tank Walls 1' Thk		Interior Tank Walls 1' Thk													
				Div. 03	Concrete													
					Keyway 4"	5751.2 lf	288	25,963	2,838				5.01 /lf	28,801	20,862	9 /lf	49,663	0.00%
					Rented Form System 16'->	221200 sf	55,300	4,992,926	2,322,600				33.07 /sf	7,315,526	4,941,747	55 /sf	12,257,273	0.28%
					Wall Bulkhead Forms	5530 sf	3,042	274,611	29,033				54.91 /sf	303,643	220,137	95 /sf	523,780	0.01%
					Waterstop 6" Bulb	10838.8 lf	1,084	97,092	62,822				14.75 /lf	159,913	105,427	24 /lf	265,340	0.01%
					Strip & Oil Wall Forms	221200 sf	1,106	99,073	15,484				0.52 /sf	114,557	82,133	1 /sf	196,691	0.00%
					Hot Water Charge	8405.6 cy			70,607				8.40 /cy	70,607	36,951	13 /cy	107,558	0.00%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Wall Rebar	442.4 tn	10,175	1,043,080	836,136				4,247.78 /tn	1,879,216	1,201,572	6,964 /tn	3,080,788	0.07%
					Finish- Top of Wall & Curb	4645.2 sf	255	22,881					4.93 /sf	22,881	17,098	9 /sf	39,979	0.00%
					Pump Place Walls	8405.6 cy	11,768	1,249,886			60,496		155.89 /cy	1,310,382	942,964	268 /cy	2,253,346	0.05%
					4500 psi Concrete	8405.6 cy			1,765,176				210.00 /cy	1,765,176	923,786	320 /cy	2,688,962	0.06%
					Grind/Patch Walls	221200 sf	17,696	1,584,907	7,742				7.20 /sf	1,592,649	1,188,366	13 /sf	2,781,014	0.06%
					Liquid Curing Compounds	221200 sf	664	59,444	174,195				1.06 /sf	233,639	135,581	2 /sf	369,220	0.01%
					Div. 03 Concrete	221,200.000 hsf	101,377	9,449,863	5,286,632		60,496		66.89 /hsf	14,796,992	9,816,624	111.27 /hsf	24,613,616	0.56%
					Interior Tank Walls 1' Thk Interior Tank Walls 1' Thk	8,405.600 cy	101,377	9,449,863	5,286,632		60,496		1,760.37 /cy	14,796,992	9,816,624	2,928.24 /cy	24,613,616	0.56%
				Slab	Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	33600 sf	11,424	1,031,450	51,156				32.22 /sf	1,082,606	796,547	56 /sf	1,879,153	0.04%
					S-O-G Const Joints > 1'	63000 sf	22,680	2,047,732	95,918				34.03 /sf	2,143,649	1,578,427	59 /sf	3,722,076	0.08%
					Strip & Oil SOG Form	96600 sf	483	43,266	6,762				0.52 /sf	50,028	35,868	1 /sf	85,897	0.00%
					SOG Rebar	2940 tn	44,100	4,520,779	5,556,600				3,427.68 /tn	10,077,379	6,219,168	5,543 /tn	16,296,548	0.37%
					Mesh Support - bricks	48300 ea	97	9,903	24,850				0.72 /ea	34,753	20,258	1 /ea	55,011	0.00%
					Finish- Hard Trowel	420000 sf	9,660	865,140					2.06 /sf	865,140	646,476	4 /sf	1,511,616	0.03%
					Pump Place Slab on Grade	46620 cy	55,944	5,941,924		134,253			130.33 /cy	6,076,177	4,401,809	225 /cy	10,477,986	0.24%
					4500 psi Concrete	46620 cy			9,790,200				210.00 /cy	9,790,200	5,123,595	320 /cy	14,913,795	0.34%
					Liquid Curing Compounds	420000 sf	1,260	112,868	330,750				1.06 /sf	443,618	257,432	2 /sf	701,051	0.02%
					Seal Floors	420000 sf	2,100	188,114	88,200				0.66 /sf	276,314	186,722	1 /sf	463,036	0.01%
					Div. 03 Concrete	420,000.000 hsf	147,748	14,761,176	15,944,436		134,253		73.43 /hsf	30,839,865	19,266,304	119.30 /hsf	50,106,169	1.14%
					Slab Slab	46,620.000 cy	147,748	14,761,176	15,944,436		134,253		661.52 /cy	30,839,865	19,266,304	1,074.78 /cy	50,106,169	1.14%
					020-3. Bioreactor Tanks fro MBR	420,000.000 hsf	604,304	58,222,446	40,645,600		399,513		236.35 /hsf	99,267,559	64,484,396	389.89 /hsf	163,751,955	3.71%
		020-4.			MBR - Odor Control Facility													
				Building	Building													
				Div. 04	Masonry													
					Interior Staging over 10'	10500 sf	53	5,421	5,250				1.02 /sf	10,671	6,552	2 /sf	17,223	0.00%
					Staging to 30'	10500 sf	53	5,421	7,875				1.27 /sf	13,296	7,925	2 /sf	21,222	0.00%
					Rub Block	10500 sf	140	14,453					1.38 /sf	14,453	10,575	2 /sf	25,028	0.00%
					Mortar	756 cf			5,898				7.80 /cf	5,898	3,087	12 /cf	8,985	0.00%
					Mortar	1260 cf			9,830				7.80 /cf	9,830	5,144	12 /cf	14,974	0.00%
					Grout Fill 10" Block Cells	6499.5 cf	1,950	201,343	41,288				37.33 /cf	242,632	168,929	63 /cf	411,561	0.01%
					Grout Fill 10"Lintel Block	52.5 cf	16	1,626	334				37.33 /cf	1,960	1,365	63 /cf	3,324	0.00%
					Grout Fill 10" Bond Beam	84 cf	25	2,602	534				37.33 /cf	3,136	2,183	63 /cf	5,319	0.00%
					Dur-O-Wall 10"	8536.5 lf			3,944				0.46 /lf	3,944	2,064	1 /lf	6,008	0.00%
					Wall Ties	12148.5 ea	162	16,722	1,531				1.50 /ea	18,253	13,036	3 /ea	31,289	0.00%
					Extruded Control Joints 1/2"	1018.5 lf	6	601	2,385				2.93 /lf	2,985	1,688	5 /lf	4,673	0.00%
					Masonry Rebar # 5	189 lbs	2	234	133				1.94 /lbs	367	241	3 /lbs	608	0.00%
					Masonry Rebar # 5	49539 lbs	594	61,385	34,875				1.94 /lbs	96,261	63,167	3 /lbs	159,428	0.00%
					Standard Brick	70255.5 ea	2,810	290,192	73,768				5.18 /ea	363,960	250,937	9 /ea	614,898	0.01%
					10" Block Bond Beam	367.5 ea	31	3,169	8,431				31.57 /ea	11,601	6,732	50 /ea	18,332	0.00%
					10" Block Lintels	136.5 ea	11	1,177	3,132				31.57 /ea	4,309	2,500	50 /ea	6,809	0.00%
					10" Fire Rated 3 hr	10783.5 ea	901	93,001	76,994				15.76 /ea	169,995	108,342	26 /ea	278,337	0.01%
					Div. 04 Masonry	10,500.000 vsf	6,753	697,349	276,201				92.72 /vsf	973,550	654,467	155.05 /vsf	1,628,017	0.04%
				Div. 05 -15	Div 5/6/7/8/9/10/11/12/22/23													
					Div 5/6/7/8/9/10/11/12/22/23 - \$/SF	12060 sf				2,854,602			236.70 /sf	2,854,602	958,687	316 /sf	3,813,289	0.09%
					Div. 05 -15 Div 5/6/7/8/9/10/11/12/22/23	12,060.000 hsf				2,854,602			236.70 /hsf	2,854,602	958,687	316.19 /hsf	3,813,289	0.09%
					Building Building	12,060.000 hsf	6,753	697,349	276,201	2,854,602			317.43 /hsf	3,828,152	1,613,154	451.19 /hsf	5,441,306	0.12%
				Footing	Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	1500 sf	300	27,086	2,284				19.58 /sf	29,370	21,410	34 /sf	50,780	0.00%
					Keyway 4"	500 lf	25	2,257	247				5.01 /lf	2,504	1,814	9 /lf	4,318	0.00%
					Waterstop 6" Bulb	500 lf	50	4,479	2,898				14.75 /lf	7,377	4,863	24 /lf	12,240	0.00%
					Strip & Oil Footing Forms	1500 sf	8	672	105				0.52 /sf	777	557	1 /sf	1,334	0.00%
					Footing Rebar	9.5 tn	190	19,477	17,955				3,940.24 /tn	37,432	23,662	6,431 /tn	61,095	0.00%
					Pump Place Wall Footings	79 cy	44	4,657			379		63.75 /cy	5,036	3,595	109 /cy	8,631	0.00%
					4500 psi Concrete	79 cy			16,590				210.00 /cy	16,590	8,682	320 /cy	25,272	0.00%
					Div. 03 Concrete	1,500.000 hsf	616	58,628	40,079		379		66.06 /hsf	99,086	64,583	109.11 /hsf	163,669	0.00%
					Footing Footing	79.000 cy	616	58,628	40,079		379		1,254.26 /cy	99,086	64,583	2,071.76 /cy	163,669	0.00%
				Foundation Wall	Foundation Wall													
				Div. 03	Concrete													
					Keyway 4"	130 lf	7	587	64				5.01 /lf	651	472	9 /lf	1,123	0.00%
					Rented Form System 16'->	5000 sf	1,250	112,860	52,500				33.07 /sf	165,360	111,703	55 /sf	277,063	0.01%
					Wall Bulkhead Forms	245 sf	135	12,166	1,286				54.91 /sf	13,453	9,753	95 /sf	23,206	0.00%
					Waterstop 6" Bulb	245 lf	25	2,195	1,420				14.75 /lf	3,615	2,383	24 /lf	5,998	0.00%
					Strip & Oil Wall Forms	5000 sf	25	2,239	350				0.52 /sf	2,589	1,857	1 /sf	4,446	0.00%
					Hot Water Charge	190 cy			1,596				8.40 /cy	1,596	835	13 /cy	2,431	0.00%
					Wall Rebar	10 tn	230	23,578	18,900				4,247.78 /tn	42,478	27,160	6,964 /tn	69,638	0.00%
					Finish- Top of Wall & Curb	210 sf	12	1,034					4.93 /sf	1,034	773	9 /sf	1,807	0.00%
					Pump Place Walls	190 cy	266	28,252			1,367		155.89 /cy	29,620	21,315	268 /cy	50,935	0.00%
					4500 psi Concrete	190 cy			39,900				210.00 /cy	39,900	20,881	320 /cy	60,781	0.00%
					Grind/Patch Walls	5000 sf	400	35,825	175				7.20 /sf	36,000	26,862	13 /sf	62,862	0.00%
					Liquid Curing Compounds	5000 sf	15	1,344	3,938				1.06 /sf	5,281	3,065	2 /sf	8,346	0.00%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Div. 03 Concrete	5,000.000 hsf	2,363	220,081	120,129		1,367		68.32 /hsf	341,577	227,058	113.73 /hsf	568,635	0.01%
					Foundation Wall Foundation Wall	190.000 cy	2,363	220,081	120,129		1,367		1,797.77 /cy	341,577	227,058	2,992.82 /cy	568,635	0.01%
			Slab		Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	964.8 sf	328	29,617	1,469				32.22 /sf	31,086	22,872	56 /sf	53,959	0.00%
					S-O-G Const Joints > 1'	1809 sf	651	58,799	2,754				34.03 /sf	61,553	45,323	59 /sf	106,877	0.00%
					Strip & Oil SOG Form	2773.8 sf	14	1,242	194				0.52 /sf	1,437	1,030	1 /sf	2,466	0.00%
					SOG Rebar	84.42 tn	1,266	129,811	159,554				3,427.68 /tn	289,365	178,579	5,543 /tn	467,944	0.01%
					Mesh Support - bricks	1386.9 ea	3	284	714				0.72 /ea	998	582	1 /ea	1,580	0.00%
					Finish- Hard Trowel	12060 sf	277	24,842					2.06 /sf	24,842	18,563	4 /sf	43,405	0.00%
					Pump Place Slab on Grade	1338.66 cy	1,606	170,618		3,855			130.33 /cy	174,473	126,395	225 /cy	300,868	0.01%
					4500 psi Concrete	1338.66 cy			281,119				210.00 /cy	281,119	147,120	320 /cy	428,239	0.01%
					Liquid Curing Compounds	12060 sf	36	3,241	9,497				1.06 /sf	12,738	7,392	2 /sf	20,130	0.00%
					Seal Floors	12060 sf	60	5,402	5,533				0.66 /sf	7,934	5,362	1 /sf	13,296	0.00%
					Div. 03 Concrete	12,060.000 hsf	4,242	423,857	457,833		3,855		73.43 /hsf	885,545	553,218	119.30 /hsf	1,438,763	0.03%
					Slab Slab	1,338.660 cy	4,242	423,857	457,833		3,855		661.52 /cy	885,545	553,218	1,074.78 /cy	1,438,763	0.03%
					020-4. MBR - Odor Control Facility	12,060.000 hsf	13,975	1,399,915	894,242	2,854,602	5,602		427.39 /hsf	5,154,360	2,458,014	631.21 /hsf	7,612,374	0.17%
		050.C			Process Components													
			Air Scour Blower		Air Scour Blower													
				Div. 46	Water and Wastewater Equipment													
					Blower 800 hp 5 duty + 1 SB	6 ea	2,400	266,291			8,135	1,680,000	325,737.52 /ea	1,954,425	1,076,473	505,150 /ea	3,030,898	0.07%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	2,400	266,291			8,135	1,680,000	13,029.50 /mgd	1,954,425	1,076,473	20,205.99 /mgd	3,030,898	0.07%
					Air Scour Blower Air Scour Blower	6.000 ea	2,400	266,291			8,135	1,680,000	325,737.52 /ea	1,954,425	1,076,473	505,149.70 /ea	3,030,898	0.07%
			Blower / Compressor System		Blower / Compressor System													
				Div. 46	Water and Wastewater Equipment													
					Package Air Compressor 200cfm 1 duty + 1 SB	2 ea	80	8,876	12,000		1,356	55,000	38,616.04 /ea	77,232	42,212	59,722 /ea	119,444	0.00%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	80	8,876	12,000		1,356	55,000	514.88 /mgd	77,232	42,212	796.30 /mgd	119,444	0.00%
					Blower / Compressor System Blower / Compressor System	1.000 ls	80	8,876	12,000		1,356	55,000	77,232.08 /ls	77,232	42,212	119,444.25 /ls	119,444	0.00%
			Diffuser System		Diffuser System													
				Div. 46	Water and Wastewater Equipment													
					Furnish & Install Distribution Systems & Diffusers (fine bubblers)	155136 sf	19,392	1,835,620	1,939,200		297,582	1,551,360	36.25 /sf	5,623,761	3,344,044	58 /sf	8,967,805	0.20%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	19,392	1,835,620	1,939,200		297,582	1,551,360	37,491.74 /mgd	5,623,761	3,344,044	59,785.37 /mgd	8,967,805	0.20%
					Diffuser System Diffuser System	155,136.000 hsf	19,392	1,835,620	1,939,200		297,582	1,551,360	36.25 /hsf	5,623,761	3,344,044	57.81 /hsf	8,967,805	0.20%
			Membranes		Membranes													
				Div. 46	Water and Wastewater Equipment													
					Membrane System	177 MGD	113,280	11,808,760	40,168		941,272	43,472,353	317,867.53 /MGD	56,262,553	31,898,183	498,083 /MGD	88,160,736	2.00%
					Div. 46 Water and Wastewater Equipment	177.000 mgd	113,280	11,808,760	40,168		941,272	43,472,353	317,867.53 /mgd	56,262,553	31,898,183	498,083.25 /mgd	88,160,736	2.00%
					Membranes Membranes	177.000 mgd	113,280	11,808,760	40,168		941,272	43,472,353	317,867.53 /mgd	56,262,553	31,898,183	498,083.25 /mgd	88,160,736	2.00%
			Process Aeration Blowers		Process Aeration Blowers													
				Div. 46	Water and Wastewater Equipment													
					Blower 1430 hp 2 duty	2 ea	800	88,764			2,712	1,001,000	546,237.52 /ea	1,092,475	589,617	841,046 /ea	1,682,092	0.04%
					Blower 2000 hp 2 duty	2 ea	800	88,764			2,712	1,400,000	745,737.52 /ea	1,491,475	798,429	1,144,952 /ea	2,289,904	0.05%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	1,600	177,527			5,423	2,401,000	17,226.33 /mgd	2,583,950	1,388,046	26,479.97 /mgd	3,971,996	0.09%
					Process Aeration Blowers Process Aeration Blowers	4.000 ea	1,600	177,527			5,423	2,401,000	645,987.52 /ea	2,583,950	1,388,046	992,999.06 /ea	3,971,996	0.09%
			RAS Pump		RAS Pump													
				Div. 46	Water and Wastewater Equipment													
					RAS Pumps 12 DUTY + 0 SB = 35 MGD	12 ea	2,880	300,223	72,000		23,931	7,200,000	633,012.78 /ea	7,596,153	4,037,749	969,492 /ea	11,633,902	0.26%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	2,880	300,223	72,000		23,931	7,200,000	50,641.02 /mgd	7,596,153	4,037,749	77,559.35 /mgd	11,633,902	0.26%
					RAS Pump RAS Pump	12.000 ea	2,880	300,223	72,000		23,931	7,200,000	633,012.78 /ea	7,596,153	4,037,749	969,491.85 /ea	11,633,902	0.26%
			Slide Gates		Slide Gates													
				Div. 46	Water and Wastewater Equipment													
					Slide Gate 48" x 48"	25 ea	3,000	332,862	50,000		424	400,000	31,331.43 /ea	783,286	476,933	50,409 /ea	1,260,218	0.03%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	3,000	332,862	50,000		424	400,000	5,221.91 /mgd	783,286	476,933	8,401.45 /mgd	1,260,218	0.03%
					Slide Gates Slide Gates	25.000 ea	3,000	332,862	50,000		424	400,000	31,331.43 /ea	783,286	476,933	50,408.73 /ea	1,260,218	0.03%
			Unidentified Process Pipe		Unidentified Process Pipe													
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder - Additional Unidentified Process Piping	1 ls			14,217,543				14,217,542.60 /ls	14,217,543	7,440,597	21,658,139 /ls	21,658,139	0.49%
					Estimate Placeholder - Additional Unidentified Installation Labor/Equip.	1 ls	82,037	8,203,653			5,331,578		13,535,231.68 /ls	13,535,232	8,600,532	22,135,764 /ls	22,135,764	0.50%
					Div. 40 Process Integration (Process Piping)	150.000 mgd	82,037	8,203,653	14,217,543		5,331,578		185,018.49 /mgd	27,752,774	16,041,129	291,959.35 /mgd	43,793,903	0.99%
					Unidentified Process Pipe Unidentified Process Pipe	150.000 MGD	82,037	8,203,653	14,217,543		5,331,578		185,018.49 /MGD	27,752,774	16,041,129	291,959.35 /MGD	43,793,903	0.99%
			WAS Pump		WAS Pump													
				Div. 46	Water and Wastewater Equipment													
					WAS Pumps 1 DUTY + 1 SB = 115 MGD	2 ea	480	50,037	12,000		3,988	100,000	83,012.78 /ea	166,026	97,285	131,655 /ea	263,311	0.01%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	480	50,037	12,000		3,988	100,000	1,106.84 /mgd	166,026	97,285	1,755.40 /mgd	263,311	0.01%
					WAS Pump WAS Pump	2.000 ea	480	50,037	12,000		3,988	100,000	83,012.78 /ea	166,026	97,285	131,655.33 /ea	263,311	0.01%
					050.C Process Components	150.000 MGD	225,149	22,983,849	16,342,910		6,613,688	56,859,713	685,334.40 /MGD	102,800,160	58,402,053	1,074,681.42 /MGD	161,202,214	3.65%
		066.			Bioreactor Tank Mixers													
			MBR Tank Mixer		MBR Tank Mixer													
				Div. 46	Water and Wastewater Equipment													
					Vertical Mixers	48 ea	2,304	223,283	12,000		25,526	1,728,000	41,433.52 /ea	1,988,809	1,088,959	64,120 /ea	3,077,768	0.07%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	2,304	223,283	12,000		25,526	1,728,000	13,258.73 /mgd	1,988,809	1,088,959	20,518.45 /mgd	3,077,768	0.07%
					MBR Tank Mixer MBR Tank Mixer	48.000 ea	2,304	223,283	12,000		25,526	1,728,000	41,433.52 /ea	1,988,809	1,088,959	64,120.16 /ea	3,077,768	0.07%
					066. Bioreactor Tank Mixers	48.000 ea	2,304	223,283	12,000		25,526	1,728,000	41,433.52 /ea	1,988,809	1,088,959	64,120.16 /ea	3,077,768	0.07%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					009. - MBR Membrane Bioreactor	150.000 MGD	1,023,987	99,836,974	68,577,062	2,854,602	7,203,084	71,087,713	1,663,729.56 /MGD	249,559,435	151,231,944	2,671,942.52 /MGD	400,791,379	9.08%
	009t. - MBR FIT				MBR Filtrate Tank													
		005.			MBR Effluent													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					005. MBR Effluent	150.000 MGD							/MGD			/MGD		
		010.			Filtrate Pump													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
			Unidentified		Unidentified													
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					Unidentified Unidentified	1.000 ls							/ls			/ls		
					010. Filtrate Pump	150.000 MGD							/MGD			/MGD		
		020.			MBR Filtrate Tank													
			Building		Building													
				Div. 04	Masonry													
					Interior Staging over 10'	745.212 sf	4	385	373				1.02 /sf	757	465	2 /sf	1,222	0.00%
					Staging to 30'	745.212 sf	4	385	559				1.27 /sf	944	562	2 /sf	1,506	0.00%
					Rub Block	725.322 sf	10	998					1.38 /sf	998	731	2 /sf	1,729	0.00%
					Mortar	54.366 cf			424				7.80 /cf	424	222	12 /cf	646	0.00%
					Mortar	91.494 cf			714				7.80 /cf	714	374	12 /cf	1,087	0.00%
					Grout Fill 10" Block Cells	469.404 cf	141	14,541	2,982				37.33 /cf	17,523	12,200	63 /cf	29,724	0.00%
					Grout Fill 10"Lintel Block	3.978 cf	1	123	25				37.33 /cf	149	103	63 /cf	252	0.00%
					Grout Fill 10"Bond Beam	6.63 cf	2	205	42				37.33 /cf	248	172	63 /cf	420	0.00%
					Dur-O-Wall 10"	616.59 lf			285				0.46 /lf	285	149	1 /lf	434	0.00%
					Wall Ties	878 ea	12	1,209	111				1.50 /ea	1,319	942	3 /ea	2,261	0.00%
					Extruded Control Joints 1/2"	74.256 lf	0	44	174				2.93 /lf	218	123	5 /lf	341	0.00%
					Masonry Rebar # 5	14.586 lbs	0	18	10				1.94 /lbs	28	19	3 /lbs	47	0.00%
					Masonry Rebar # 5	3578.874 lbs	43	4,435	2,520				1.94 /lbs	6,954	4,563	3 /lbs	11,518	0.00%
					Standard Brick	5077.254 ea	203	20,972	5,311				5.18 /ea	26,303	18,135	9 /ea	44,438	0.00%
					10" Block Bond Beam	26.52 ea	2	229	608				31.57 /ea	837	486	50 /ea	1,323	0.00%
					10" Block Lintels	10.608 ea	1	91	243				31.57 /ea	335	194	50 /ea	529	0.00%
					10" Fire Rated 3 hr	780 ea	65	6,727	5,569				15.76 /ea	12,296	7,837	26 /ea	20,133	0.00%
					Div. 04 Masonry	745.210 vsf	488	50,362	19,970				94.38 /vsf	70,332	47,277	157.82 /vsf	117,609	0.00%
				Div. 05 -15	Div 5/6/7/8/9/10/11/12/22/23													
					Div 5/6/7/8/9/10/11/12/22/23 - \$/SF	2652 sf				627,728			236.70 /sf	627,728	210,816	316 /sf	838,544	0.02%
					Div. 05 -15 Div 5/6/7/8/9/10/11/12/22/23	2,652.000 hsf				627,728			236.70 /hsf	627,728	210,816	316.19 /hsf	838,544	0.02%
					Building Building	2,652.000 hsf	488	50,362	19,970	627,728			263.22 /hsf	698,060	258,093	360.54 /hsf	956,153	0.02%
			Elevated Slab		Elevated Slab													
				Div. 03	Concrete													
					Scaffolding - Elevated Deck Shoring from 10' to 24' height	1326 sf	27	2,524	1,127				2.75 /sf	3,651	2,383	5 /sf	6,034	0.00%
					Form Suspended Slab 15-up	1326 sf	332	29,930	3,119				24.92 /sf	33,049	23,969	43 /sf	57,019	0.00%
					Slab Edge Form > 1'	71.604 sf	18	1,616	215				25.57 /sf	1,831	1,319	44 /sf	3,150	0.00%
					Pour Strips	1397.604 lf	70	6,260	5,870				8.68 /lf	12,130	7,749	14 /lf	19,879	0.00%
					Strip & Oil Suspended Slab Frm	1326 sf	7	594	93				0.52 /sf	687	492	1 /sf	1,179	0.00%
					Suspended Slab Rebar	9.282 tn	278	28,545	17,543				4,965.34 /tn	46,088	30,089	8,207 /tn	76,177	0.00%
					Finish- Hard Trowel	1326 sf	30	2,731					2.06 /sf	2,731	2,041	4 /sf	4,772	0.00%
					Pump Place Suspended Slab	98.124 cy	128	13,549			512		143.30 /cy	14,061	10,146	247 /cy	24,207	0.00%
					4500 psi Concrete	98.124 cy			20,606				210.00 /cy	20,606	10,784	320 /cy	31,390	0.00%
					Liquid Curing Compounds	1326 sf	4	356	1,044				1.06 /sf	1,401	813	2 /sf	2,213	0.00%
					Div. 03 Concrete	1,326.000 hsf	893	86,106	49,616		512		102.74 /hsf	136,235	89,785	170.45 /hsf	226,020	0.01%
					Elevated Slab Elevated Slab	98.120 cy	893	86,106	49,616		512		1,388.45 /cy	136,235	89,785	2,303.50 /cy	226,020	0.01%
			Footing		Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	553.8 sf	111	10,000	843				19.58 /sf	10,843	7,904	34 /sf	18,748	0.00%
					Keyway 4"	187.184 lf	9	845	92				5.01 /lf	937	679	9 /lf	1,616	0.00%
					Waterstop 6" Bulb	187.184 lf	19	1,677	1,085				14.75 /lf	2,762	1,821	24 /lf	4,582	0.00%
					Strip & Oil Footing Forms	553.8 sf	3	248	39				0.52 /sf	287	206	1 /sf	492	0.00%
					Footing Rebar	1.024 tn	20	2,099	1,935				3,939.89 /tn	4,034	2,550	6,431 /tn	6,585	0.00%
					Pump Place Wall Footings	27.69 cy	15	1,632			133		63.75 /cy	1,765	1,280	109 /cy	3,025	0.00%
					4500 psi Concrete	27.69 cy			5,815				210.00 /cy	5,815	3,043	320 /cy	8,858	0.00%
					Div. 03 Concrete	553.800 hsf	177	16,502	9,809		133		47.75 /hsf	26,444	17,463	79.28 /hsf	43,907	0.00%
					Footing Footing	27.690 cy	177	16,502	9,809		133		955.00 /cy	26,444	17,463	1,585.67 /cy	43,907	0.00%
			MBR Tank Grating		MBR Tank Grating													
				Div. 09	Finishes													
					Fiberglass Grating 1 1/2"	18431.4 sf	922	83,048	1,382,355		41,471		81.76 /sf	1,506,874	807,349	126 /sf	2,314,223	0.05%
					Fiberglass Grating Banding	748.8 lf			5,354				7.15 /lf	5,354	2,802	11 /lf	8,156	0.00%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Div. 09 Finishes	18,431.400 sf	922	83,048	1,387,709		41,471		82.05 /sf	1,512,228	810,151	126.00 /sf	2,322,378	0.05%
			MBR Tank Slab		MBR Tank Grating MBR Tank Grating	18,431.400 sf	922	83,048	1,387,709		41,471		82.05 /sf	1,512,228	810,151	126.00 /sf	2,322,378	0.05%
				Div. 03	MBR Tank Slab Concrete													
					S.O.G. Edge Form > 1'	106.08 sf	36	3,256	162				32.22 /sf	3,418	2,515	56 /sf	5,933	0.00%
					S-O-G Const Joints > 1'	198.9 sf	72	6,465	303				34.03 /sf	6,768	4,983	59 /sf	11,751	0.00%
					Strip & Oil SOG Form	304.98 sf	2	137	21				0.52 /sf	158	113	1 /sf	271	0.00%
					SOG Rebar	9.282 tn	139	14,273	17,543				3,427.66 /tn	31,816	19,635	5,543 /tn	51,450	0.00%
					Mesh Support - bricks	154 ea	0	32	79				0.72 /ea	111	65	1 /ea	175	0.00%
					Finish- Hard Trowel	1326 sf	30	2,731					2.06 /sf	2,731	2,041	4 /sf	4,772	0.00%
					Pump Place Slab on Grade	147.186 cy	177	18,760			424		130.33 /cy	19,183	13,897	225 /cy	33,080	0.00%
					4500 psi Concrete	147.186 cy			30,909				210.00 /cy	30,909	16,176	320 /cy	47,085	0.00%
					Liquid Curing Compounds	1326 sf	4	356	1,044				1.06 /sf	1,401	813	2 /sf	2,213	0.00%
					Seal Floors	1326 sf	7	594	278				0.66 /sf	872	590	1 /sf	1,462	0.00%
					Div. 03 Concrete	1,326.000 hsf	466	46,603	50,339		424		73.43 /hsf	97,367	60,827	119.30 /hsf	158,194	0.00%
			MBR Tank Walls		MBR Tank Slab MBR Tank Slab	150.000 MGD	466	46,603	50,339		424		649.11 /MGD	97,367	60,827	1,054.62 /MGD	158,194	0.00%
				Div. 03	MBR Tank Walls Concrete													
					Keyway 4"	42.432 lf	2	192	21				5.01 /lf	213	154	9 /lf	366	0.00%
					Rented Form System 16'->	1703.91 sf	426	38,461	17,891				33.07 /sf	56,352	38,066	55 /sf	94,418	0.00%
					Wall Bulkhead Forms	84.864 sf	47	4,214	446				54.91 /sf	4,660	3,378	95 /sf	8,038	0.00%
					Waterstop 6" Bulb	84.864 lf	8	760	492				14.75 /lf	1,252	825	24 /lf	2,078	0.00%
					Strip & Oil Wall Forms	1703.91 sf	9	763	119				0.52 /sf	882	633	1 /sf	1,515	0.00%
					Hot Water Charge	63.648 cy			535				8.40 /cy	535	280	13 /cy	814	0.00%
					Wall Rebar	5.304 tn	122	12,506	10,024				4,247.71 /tn	22,530	14,406	6,964 /tn	36,935	0.00%
					Finish- Top of Wall & Curb	71.604 sf	4	353					4.93 /sf	353	264	9 /sf	616	0.00%
					Pump Place Walls	63.648 cy	89	9,464			458		155.89 /cy	9,922	7,140	268 /cy	17,063	0.00%
					4500 psi Concrete	63.648 cy			13,366				210.00 /cy	13,366	6,995	320 /cy	20,361	0.00%
					Grind/Patch Walls	1703.91 sf	136	12,209	60				7.20 /sf	12,268	9,154	13 /sf	21,422	0.00%
					Liquid Curing Compounds	1703.91 sf	5	458	1,342				1.06 /sf	1,800	1,044	2 /sf	2,844	0.00%
					Div. 03 Concrete	1,703.910 hsf	848	79,379	44,295		458		72.85 /hsf	124,132	82,339	121.17 /hsf	206,471	0.00%
					MBR Tank Walls MBR Tank Walls	150.000 MGD	848	79,379	44,295		458		827.55 /MGD	124,132	82,339	1,376.47 /MGD	206,471	0.00%
			Unidentified Process Pipe		Unidentified Process Pipe													
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder - Additional Unidentified Process Piping	1s							/1s			/1s		
					Estimate Placeholder - Additional Unidentified Installation Labor/Equip.	1s							/1s			/1s		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					Unidentified Process Pipe Unidentified Process Pipe	150.000 MGD							/MGD			/MGD		
					020. MBR Filtrate Tank	150.000 MGD	3,794	362,000	1,561,739	627,728	42,998		17,296.44 /MGD	2,594,466	1,318,658	26,087.49 /MGD	3,913,124	0.09%
					009t. - MBR FIT MBR Filtrate Tank	150.000 MGD	3,794	362,000	1,561,739	627,728	42,998		17,296.44 /MGD	2,594,466	1,318,658	26,087.49 /MGD	3,913,124	0.09%
010. - Post Tretment					Post Treatment													
		201.			Post Treatment Buildings Process E&I & Unidentified Piping													
			Unidentified Process Pipe		Unidentified Process Pipe													
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder - Additional Unidentified Process Piping	1 1s			3,845,455				3,845,455.02 /1s	3,845,455	2,012,477	5,857,932 /1s	5,857,932	0.13%
					Estimate Placeholder - Additional Unidentified Installation Labor/Equip.	1 1s	17,235	1,723,515			498,485		2,221,999.71 /1s	2,222,000	1,478,463	3,700,463 /1s	3,700,463	0.08%
					Div. 40 Process Integration (Process Piping)	150.000 mgd	17,235	1,723,515	3,845,455		498,485		40,449.70 /mgd	6,067,455	3,490,940	63,722.63 /mgd	9,558,395	0.22%
					Unidentified Process Pipe Unidentified Process Pipe	150.000 MGD	17,235	1,723,515	3,845,455		498,485		40,449.70 /MGD	6,067,455	3,490,940	63,722.63 /MGD	9,558,395	0.22%
					201. Post Treatment Buildings Process E&I & Unidentified Piping	150.000 MGD	17,235	1,723,515	3,845,455		498,485		40,449.70 /MGD	6,067,455	3,490,940	63,722.63 /MGD	9,558,395	0.22%
		209.			Lime Storage / Clarifyer Building													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 1s							/1s			/1s		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
			Footing		Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	2728.65 sf	546	49,273	4,154				19.58 /sf	53,427	38,947	34 /sf	92,374	0.00%
					Keyway 4"	909.6 lf	45	4,106	449				5.01 /lf	4,555	3,299	9 /lf	7,855	0.00%
					Waterstop 6" Bulb	909.6 lf	91	8,148	5,272				14.75 /lf	13,420	8,847	24 /lf	22,268	0.00%
					Strip & Oil Footing Forms	2728.65 sf	14	1,222	191				0.52 /sf	1,413	1,013	1 /sf	2,426	0.00%
					Footing Rebar	5.7 tn	114	11,686	10,773				3,940.24 /tn	22,459	14,197	6,431 /tn	36,657	0.00%
					Pump Place Wall Footings	151.95 cy	84	8,957			729		63.75 /cy	9,686	6,914	109 /cy	16,600	0.00%
					4500 psi Concrete	151.95 cy			31,910				210.00 /cy	31,910	16,700	320 /cy	48,609	0.00%
					Div. 03 Concrete	2,728.650 hsf	894	83,393	52,749		729		50.16 /hsf	136,871	89,918	83.11 /hsf	226,789	0.01%
					Footing Footing	151.950 cy	894	83,393	52,749		729		900.76 /cy	136,871	89,918	1,492.52 /cy	226,789	0.01%
			Foundation Wall		Foundation Wall													
				Div. 03	Concrete													
					Keyway 4"	136.65 lf	7	617	67				5.01 /lf	684	496	9 /lf	1,180	0.00%
					Rented Form System 16'->	5467.8 sf	1,367	123,419	57,412				33.07 /sf	180,831	122,154	55 /sf	302,985	0.01%
					Wall Bulkhead Forms	273.45 sf	150	13,579	1,436				54.91 /sf	15,015	10,885	95 /sf	25,900	0.00%
					Waterstop 6" Bulb	273.45 lf	27	2,450	1,585				14.75 /lf	4,034	2,660	24 /lf	6,694	0.00%
					Strip & Oil Wall Forms	5467.8 sf	27	2,449	383				0.52 /sf	2,832	2,030	1 /sf	4,862	0.00%
					Hot Water Charge	202.5 cy			1,701				8.40 /cy	1,701	890	13 /cy	2,591	0.00%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Wall Rebar	17.85 tn	411	42,086	33,737				4,247.83 /tn	75,824	48,482	6,964 /tn	124,305	0.00%
					Finish- Top of Wall & Curb	227.85 sf	13	1,122					4.93 /sf	1,122	839	9 /sf	1,961	0.00%
					Pump Place Walls	202.5 cy	284	30,111			1,457		155.89 /cy	31,569	22,717	268 /cy	54,286	0.00%
					4500 psi Concrete	202.5 cy			42,525				210.00 /cy	42,525	22,255	320 /cy	64,780	0.00%
					Grind/Patch Walls	5467.8 sf	437	39,177	191				7.20 /sf	39,368	29,375	13 /sf	68,743	0.00%
					Liquid Curing Compounds	5467.8 sf	16	1,469	4,306				1.06 /sf	5,775	3,351	2 /sf	9,127	0.00%
					Div. 03 Concrete	5,467.800 hsf	2,739	256,480	143,343		1,457		73.39 /hsf	401,280	266,134	122.06 /hsf	667,415	0.02%
					Foundation Wall Foundation Wall	202.500 cy	2,739	256,480	143,343		1,457		1,981.63 /cy	401,280	266,134	3,295.87 /cy	667,415	0.02%
			Slab		Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	1595.4 sf	542	48,975	2,429				32.22 /sf	51,404	37,822	56 /sf	89,226	0.00%
					S-O-G Const Joints > 1'	2978.85 sf	1,072	96,824	4,535				34.03 /sf	101,359	74,633	59 /sf	175,992	0.00%
					Strip & Oil SOG Form	4574.1 sf	23	2,049	320				0.52 /sf	2,369	1,698	1 /sf	4,067	0.00%
					SOG Rebar	143.4 tn	2,151	220,503	271,026				3,427.68 /tn	491,529	303,343	5,543 /tn	794,872	0.02%
					Mesh Support - bricks	2294.7 ea	5	470	1,181				0.72 /ea	1,651	962	1 /ea	2,614	0.00%
					Finish- Hard Trowel	19858.8 sf	457	40,906					2.06 /sf	40,906	30,567	4 /sf	71,474	0.00%
					Pump Place Slab on Grade	2206.5 cy	2,648	281,228			6,354		130.33 /cy	287,582	208,335	225 /cy	495,918	0.01%
					4500 psi Concrete	2206.5 cy			463,365				210.00 /cy	463,365	242,497	320 /cy	705,862	0.02%
					Liquid Curing Compounds	19858.8 sf	60	5,337	15,639				1.06 /sf	20,976	12,172	2 /sf	33,148	0.00%
					Seal Floors	19858.8 sf	99	8,895	4,170				0.66 /sf	13,065	8,829	1 /sf	21,894	0.00%
					Div. 03 Concrete	19,858.800 hsf	7,057	705,187	762,665		6,354		74.23 /hsf	1,474,207	920,859	120.60 /hsf	2,395,066	0.05%
					Slab Slab	2,206.500 cy	7,057	705,187	762,665		6,354		668.12 /cy	1,474,207	920,859	1,085.46 /cy	2,395,066	0.05%
					209. Lime Storage / Clarifyer Building	19,858.800 sf	10,690	1,045,060	958,757		8,541		101.33 /sf	2,012,358	1,276,911	165.63 /sf	3,289,269	0.07%
		210.			Lime													
			Lime Storage		Lime Storage													
				Div. 46	Water and Wastewater Equipment													
					Silos, and Lime Equipment	6 ea	1,440	139,552			15,954	7,710,666	1,311,028.62 /ea	7,866,172	4,146,761	2,002,156 /ea	12,012,933	0.27%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	1,440	139,552			15,954	7,710,666	52,441.14 /mgd	7,866,172	4,146,761	80,086.22 /mgd	12,012,933	0.27%
					Lime Storage Lime Storage	6.000 ea	1,440	139,552			15,954	7,710,666	1,311,028.62 /ea	7,866,172	4,146,761	2,002,155.51 /ea	12,012,933	0.27%
					210. Lime	1.000 ls	1,440	139,552			15,954	7,710,666	7,866,171.72 /ls	7,866,172	4,146,761	12,012,933.06 /ls	12,012,933	0.27%
		210.-220			Lime to Lime Saturator Clarifier Piping													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					210.-220 Lime to Lime Saturator Clarifier Piping								/lf			/lf		
		220.			Lime Saturator Clarifier													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Lime Saturators; (3) 65' diam x 12' high Saturator	3 ea	7,200	697,759			79,769	1,267,500	681,676.00 /ea	2,045,028	1,220,672	1,088,567 /ea	3,265,700	0.07%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	7,200	697,759			79,769	1,267,500	13,633.52 /mgd	2,045,028	1,220,672	21,771.33 /mgd	3,265,700	0.07%
					* unassigned *		7,200	697,759			79,769	1,267,500		2,045,028	1,220,672		3,265,700	0.07%
					220. Lime Saturator Clarifier	1.000 ls	7,200	697,759			79,769	1,267,500	2,045,028.00 /ls	2,045,028	1,220,672	3,265,700.02 /ls	3,265,700	0.07%
		220.-250			Lime Saturator Clarifier to Free Chlorine Piping													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					220.-250 Lime Saturator Clarifier to Free Chlorine Piping								/lf			/lf		
		229.			Co2 Building													
			Footing		Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	1405.95 sf	281	25,388	2,141				19.58 /sf	27,529	20,067	34 /sf	47,596	0.00%
					Keyway 4"	468.75 lf	23	2,116	231				5.01 /lf	2,347	1,700	9 /lf	4,048	0.00%
					Waterstop 6" Bulb	468.75 lf	47	4,199	2,717				14.75 /lf	6,916	4,559	24 /lf	11,475	0.00%
					Strip & Oil Footing Forms	1405.95 sf	7	630	98				0.52 /sf	728	522	1 /sf	1,250	0.00%
					Footing Rebar	3 tn	60	6,151	5,670				3,940.24 /tn	11,821	7,472	6,431 /tn	19,293	0.00%
					Pump Place Wall Footings	78.3 cy	43	4,616			376		63.75 /cy	4,991	3,563	109 /cy	8,554	0.00%
					4500 psi Concrete	78.3 cy			16,443				210.00 /cy	16,443	8,605	320 /cy	25,048	0.00%
					Div. 03 Concrete	1,406.000 hsf	462	43,099	27,300		376		50.34 /hsf	70,775	46,490	83.40 /hsf	117,265	0.00%
					Footing Footing	78.300 cy	462	43,099	27,300		376		903.90 /cy	70,775	46,490	1,497.63 /cy	117,265	0.00%
			Foundation Wall		Foundation Wall													
				Div. 03	Concrete													
					Keyway 4"	70.5 lf	4	318	35				5.01 /lf	353	256	9 /lf	609	0.00%
					Rented Form System 16'->	2817.45 sf	704	63,595	29,583				33.07 /sf	93,179	62,944	55 /sf	156,122	0.00%
					Wall Bulkhead Forms	140.85 sf	77	6,994	739				54.91 /sf	7,734	5,607	95 /sf	13,341	0.00%
					Waterstop 6" Bulb	140.85 lf	14	1,262	816				14.75 /lf	2,078	1,370	24 /lf	3,448	0.00%
					Strip & Oil Wall Forms	2817.45 sf	14	1,262	197				0.52 /sf	1,459	1,046	1 /sf	2,505	0.00%
					Hot Water Charge	104.4 cy			877				8.40 /cy	877	459	13 /cy	1,336	0.00%
					Wall Rebar	9.15 tn	210	21,574	17,294				4,247.87 /tn	38,868	24,852	6,964 /tn	63,720	0.00%
					Finish- Top of Wall & Curb	117.45 sf	6	579					4.93 /sf	579	432	9 /sf	1,011	0.00%
					Pump Place Walls	104.4 cy	146	15,524			751		155.89 /cy	16,275	11,712	268 /cy	27,987	0.00%
					4500 psi Concrete	104.4 cy			21,924				210.00 /cy	21,924	11,474	320 /cy	33,398	0.00%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Grind/Patch Walls	2817.45 sf	225	20,187	99				7.20 /sf	20,286	15,136	13 /sf	35,422	0.00%
					Liquid Curing Compounds	2817.45 sf	8	757	2,219				1.06 /sf	2,976	1,727	2 /sf	4,703	0.00%
					Div. 03 Concrete	2,817.450 hsf	1,410	132,052	73,784		751		73.32 /hsf	206,587	137,015	121.95 /hsf	343,602	0.01%
					Foundation Wall Foundation Wall	104.400 cy	1,410	132,052	73,784		751		1,978.81 /cy	206,587	137,015	3,291.21 /cy	343,602	0.01%
			Slab		Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	471.6 sf	160	14,477	718				32.22 /sf	15,195	11,180	56 /sf	26,375	0.00%
					S-O-G Const Joints > 1'	880.5 sf	317	28,619	1,341				34.03 /sf	29,960	22,060	59 /sf	52,020	0.00%
					Strip & Oil SOG Form	1351.95 sf	7	606	95				0.52 /sf	700	502	1 /sf	1,202	0.00%
					SOG Rebar	42.45 tn	637	65,275	80,231				3,427.70 /tn	145,506	89,798	5,543 /tn	235,304	0.01%
					Mesh Support - bricks	678.3 ea	1	139	349				0.72 /ea	488	284	1 /ea	773	0.00%
					Finish- Hard Trowel	5869.5 sf	135	12,090					2.06 /sf	12,090	9,035	4 /sf	21,125	0.00%
					Pump Place Slab on Grade	652.2 cy	783	83,126			1,878		130.33 /cy	85,004	61,580	225 /cy	146,584	0.00%
					4500 psi Concrete	652.2 cy			136,962				210.00 /cy	136,962	71,678	320 /cy	208,640	0.00%
					Liquid Curing Compounds	5869.5 sf	18	1,577	4,622				1.06 /sf	6,200	3,598	2 /sf	9,797	0.00%
					Seal Floors	5869.5 sf	29	2,629	1,233				0.66 /sf	3,861	2,609	1 /sf	6,471	0.00%
					Div. 03 Concrete	5,870.000 hsf	2,087	208,538	225,550		1,878		74.27 /hsf	435,967	272,324	120.66 /hsf	708,290	0.02%
					Slab Slab	652.200 cy	2,087	208,538	225,550		1,878		668.46 /cy	435,967	272,324	1,086.00 /cy	708,290	0.02%
					229. Co2 Building	5,870.000 sf	3,959	383,689	326,634		3,005		121.52 /sf	713,329	455,828	199.17 /sf	1,169,157	0.03%
		230.			Carbon Dioxide													
			* unassigned *															
				Div. 46	Water and Wastewater Equipment													
					Carbon Dioxide Storage & Feed System (10MGD), 50ton liquid CO2 storage, feed panel, vaporizers, heater, regulator, diffusers, controls	4 ea	6,400	620,230			70,906	4,814,260	1,376,349.00 /ea	5,505,396	3,014,904	2,130,075 /ea	8,520,300	0.19%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	6,400	620,230			70,906	4,814,260	36,702.64 /mgd	5,505,396	3,014,904	56,802.00 /mgd	8,520,300	0.19%
					* unassigned *		6,400	620,230			70,906	4,814,260		5,505,396	3,014,904		8,520,300	0.19%
			Sidestream Carrier Water Pump		Sidestream Carrier Water Pump													
				Div. 46	Water and Wastewater Equipment													
					Sidestream Carrier Water Pumps 4 DUTY + 0 SB	4 ea	960	100,074	24,000		7,977	450,000	145,512.78 /ea	582,051	325,405	226,864 /ea	907,456	0.02%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	960	100,074	24,000		7,977	450,000	3,880.34 /mgd	582,051	325,405	6,049.71 /mgd	907,456	0.02%
					Sidestream Carrier Water Pump Sidestream Carrier Water Pump	4.000 ea	960	100,074	24,000		7,977	450,000	145,512.78 /ea	582,051	325,405	226,864.02 /ea	907,456	0.02%
					230. Carbon Dioxide	1.000 ls	7,360	720,305	24,000		78,882	5,264,260	6,087,447.12 /ls	6,087,447	3,340,309	9,427,755.78 /ls	9,427,756	0.21%
		230.-250			Carbon Dioxide to Free Chlorine Piping													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					230.-250 Carbon Dioxide to Free Chlorine Piping								/lf			/lf		
					010. - Post Tretment Post Treatment	150.000 MGD	47,884	4,709,880	5,154,847		684,636	14,242,426	165,278.59 /MGD	24,791,789	13,931,421	258,154.73 /MGD	38,723,210	0.88%
	011. - PWPS				Primary Water Pumping System													
		260.			Product Water Wet Well Tank (Clearwell/Chlor Contact Tank)/High Svc Pump Sta													
			Building		Building													
				Div. 04	Masonry													
					Interior Staging over 10'	27978.15 sf	140	14,445	13,989				1.02 /sf	28,434	17,457	2 /sf	45,892	0.00%
					Staging to 30'	27978.15 sf	140	14,445	20,984				1.27 /sf	35,429	21,118	2 /sf	56,547	0.00%
					Rub Block	27978.15 sf	373	38,511					1.38 /sf	38,511	28,178	2 /sf	66,689	0.00%
					Mortar	2008.65 cf			15,670				7.80 /cf	15,670	8,201	12 /cf	23,871	0.00%
					Mortar	3371.7 cf			26,304				7.80 /cf	26,304	13,766	12 /cf	40,070	0.00%
					Grout Fill 10" Block Cells	17289.15 cf	5,187	535,588	109,829				37.33 /cf	645,418	449,364	63 /cf	1,094,782	0.02%
					Grout Fill 10"Lintel Block	143.4 cf	43	4,442	911				37.33 /cf	5,353	3,727	63 /cf	9,080	0.00%
					Grout Fill 10 "Bond Beam	215.25 cf	65	6,668	1,367				37.33 /cf	8,035	5,595	63 /cf	13,630	0.00%
					Dur-O-Wall 10"	22741.35 lf			10,507				0.46 /lf	10,507	5,498	1 /lf	16,005	0.00%
					Wall Ties	32354.4 ea	431	44,535	4,077				1.50 /ea	48,611	34,719	3 /ea	83,331	0.00%
					Extruded Control Joints 1/2"	2726.1 lf	16	1,607	6,383				2.93 /lf	7,991	4,517	5 /lf	12,507	0.00%
					Masonry Rebar # 5	502.2 lbs	6	622	354				1.94 /lbs	976	640	3 /lbs	1,616	0.00%
					Masonry Rebar # 5	131928.15 lbs	1,583	163,476	92,877				1.94 /lbs	256,354	168,221	3 /lbs	424,575	0.01%
					Standard Brick	187095.75 ea	7,484	772,803	196,451				5.18 /ea	969,254	668,265	9 /ea	1,637,519	0.04%
					10" Block Bond Beam	1004.4 ea	84	8,662	23,043				31.57 /ea	31,706	18,398	50 /ea	50,103	0.00%
					10" Block Lintels	358.8 ea	30	3,094	8,232				31.57 /ea	11,326	6,572	50 /ea	17,898	0.00%
					10" Fire Rated 3 hr	28695.6 ea	2,397	247,481	204,887				15.76 /ea	452,368	288,305	26 /ea	740,673	0.02%
					Div. 04 Masonry	27,978.150 vsf	17,978	1,856,382	735,865				92.65 /vsf	2,592,247	1,742,543	154.93 /vsf	4,334,790	0.10%
				Div. 05 -15	Div 5/6/7/8/9/10/11/12/22/23													
					Div 5 - \$/SF	143478.3 sf				8,126,611			56.64 /sf	8,126,611	2,729,234	76 /sf	10,855,845	0.25%
					Div 6 - \$/SF	143478.3 sf				246,783			1.72 /sf	246,783	82,879	2 /sf	329,662	0.01%
					Div 7 - \$/SF	143478.3 sf				5,872,567			40.93 /sf	5,872,567	1,972,238	55 /sf	7,844,805	0.18%
					Div 8 - \$/SF	143478.3 sf				1,314,261			9.16 /sf	1,314,261	441,380	12 /sf	1,755,642	0.04%
					Div 9 - \$/SF	143478.3 sf				5,165,219			36.00 /sf	5,165,219	1,734,683	48 /sf	6,899,901	0.16%
					Div 10 - \$/SF	143478.3 sf				275,478			1.92 /sf	275,478	92,516	3 /sf	367,995	0.01%
					Div 11 - \$/SF	143478.3 sf				136,304			0.95 /sf	136,304	45,776	1 /sf	182,081	0.00%
					Div 12 - \$/SF	143478.3 sf				53,087			0.37 /sf	53,087	17,829	0 /sf	70,916	0.00%
					Div 22 - \$/SF	143478.3 sf				876,652			6.11 /sf	876,652	294,414	8 /sf	1,171,067	0.03%
					Div 23 - \$/SF	143478.3 sf				8,417,872			58.67 /sf	8,417,872	2,827,051	78 /sf	11,244,923	0.25%
					Div. 05 -15 Div 5/6/7/8/9/10/11/12/22/23	143,478.300 hsf				30,484,834			212.47 /hsf	30,484,834	10,238,001	283.83 /hsf	40,722,835	0.92%
					Building Building	143,478.300 hsf	17,978	1,856,382	735,865				230.54 /hsf	33,077,082	11,980,543	314.04 /hsf	45,057,625	1.02%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
			Elevated Slab		Elevated Slab													
				Div. 03	Concrete													
					Scaffolding - Elevated Deck Shoring from 10' to 24' height	72464.4 sf	1,449	137,943	61,595				2.75 /sf	199,538	130,220	5 /sf	329,758	0.01%
					Form Suspended Slab 15-up	72464.4 sf	18,116	1,635,666	170,436				24.92 /sf	1,806,103	1,309,900	43 /sf	3,116,003	0.07%
					Slab Edge Form > 1'	3913.05 sf	978	88,325	11,739				25.57 /sf	100,065	72,061	44 /sf	172,126	0.00%
					Pour Strips	76377.3 lf	3,819	342,086	320,785				8.68 /lf	662,871	423,495	14 /lf	1,086,366	0.02%
					Strip & Oil Suspended Slab Frm	72464.4 sf	362	32,456	5,073				0.52 /sf	37,529	26,907	1 /sf	64,435	0.00%
					Suspended Slab Rebar	507.3 tn	15,219	1,560,130	958,797				4,965.36 /tn	2,518,927	1,644,472	8,207 /tn	4,163,399	0.09%
					Finish- Hard Trowel	72464.4 sf	1,667	149,266					2.06 /sf	149,266	111,539	4 /sf	260,806	0.01%
					Pump Place Suspended Slab	5362.35 cy	6,971	740,410			27,995		143.30 /cy	768,405	554,452	247 /cy	1,322,857	0.03%
					4500 psi Concrete	5362.35 cy			1,126,094				210.00 /cy	1,126,094	589,329	320 /cy	1,715,422	0.04%
					Liquid Curing Compounds	72464.4 sf	217	19,474	57,066				1.06 /sf	76,539	44,416	2 /sf	120,955	0.00%
					Div. 03 Concrete	72,464.400 hsf	48,799	4,705,757	2,711,584		27,995		102.75 /hsf	7,445,336	4,906,790	170.46 /hsf	12,352,125	0.28%
					Elevated Slab Elevated Slab	5,362.350 cy	48,799	4,705,757	2,711,584		27,995		1,388.45 /cy	7,445,336	4,906,790	2,303.49 /cy	12,352,125	0.28%
			Footing		Footing													
				Div. 03	Concrete													
					Continuous Footing Forms > 12"	5362.35 sf	1,072	96,831	8,164				19.58 /sf	104,995	76,538	34 /sf	181,533	0.00%
					Keyway 4"	1811.55 lf	91	8,178	894				5.01 /lf	9,072	6,571	9 /lf	15,643	0.00%
					Waterstop 6" Bulb	1811.55 lf	181	16,228	10,500				14.75 /lf	26,727	17,621	24 /lf	44,348	0.00%
					Strip & Oil Footing Forms	5362.35 sf	27	2,402	375				0.52 /sf	2,777	1,991	1 /sf	4,768	0.00%
					Footing Rebar	36.23 tn	725	74,280	68,476				3,940.27 /tn	142,756	90,241	6,431 /tn	232,997	0.01%
					Pump Place Wall Footings	289.8 cy	161	17,083			1,391		63.75 /cy	18,474	13,186	109 /cy	31,660	0.00%
					4500 psi Concrete	289.8 cy			60,858				210.00 /cy	60,858	31,849	320 /cy	92,707	0.00%
					Div. 03 Concrete	5,362.350 hsf	2,256	215,002	149,267		1,391		68.19 /hsf	365,659	237,998	112.57 /hsf	603,657	0.01%
					Footing Footing	289.800 cy	2,256	215,002	149,267		1,391		1,261.77 /cy	365,659	237,998	2,083.01 /cy	603,657	0.01%
			Foundation Wall		Foundation Wall													
				Div. 03	Concrete													
					Keyway 4"	2173.95 lf	109	9,814	1,073				5.01 /lf	10,887	7,886	9 /lf	18,773	0.00%
					Rented Form System 16'->	86087.55 sf	21,522	1,943,168	903,919				33.07 /sf	2,847,087	1,923,250	55 /sf	4,770,337	0.11%
					Wall Bulkhead Forms	4275.45 sf	2,351	212,312	22,446				54.91 /sf	234,758	170,196	95 /sf	404,954	0.01%
					Waterstop 6" Bulb	4275.45 lf	428	38,299	24,781				14.75 /lf	63,079	41,586	24 /lf	104,665	0.00%
					Strip & Oil Wall Forms	86087.55 sf	430	38,558	6,026				0.52 /sf	44,584	31,965	1 /sf	76,549	0.00%
					Hot Water Charge	3188.4 cy			26,783				8.40 /cy	26,783	14,016	13 /cy	40,799	0.00%
					Wall Rebar	289.8 tn	6,665	683,283	547,722				4,247.78 /tn	1,231,005	787,106	6,964 /tn	2,018,111	0.05%
					Finish- Top of Wall & Curb	3550.8 sf	195	17,490					4.93 /sf	17,490	13,070	9 /sf	30,560	0.00%
					Pump Place Walls	3188.4 cy	4,464	474,105			22,947		155.89 /cy	497,052	357,684	268 /cy	854,736	0.02%
					4500 psi Concrete	3188.4 cy			669,564				210.00 /cy	669,564	350,409	320 /cy	1,019,973	0.02%
					Grind/Patch Walls	86087.55 sf	6,887	616,821	3,013				7.20 /sf	619,834	462,493	13 /sf	1,082,327	0.02%
					Liquid Curing Compounds	86087.55 sf	258	23,135	67,794				1.06 /sf	90,929	52,766	2 /sf	143,695	0.00%
					Div. 03 Concrete	86,087.550 hsf	43,310	4,056,985	2,273,120		22,947		73.80 /hsf	6,353,053	4,212,427	122.73 /hsf	10,565,480	0.24%
					Foundation Wall Foundation Wall	3,188.400 cy	43,310	4,056,985	2,273,120		22,947		1,992.55 /cy	6,353,053	4,212,427	3,313.72 /cy	10,565,480	0.24%
			Slab		Slab													
				Div. 03	Concrete													
					S.O.G. Edge Form > 1'	5797.2 sf	1,971	177,962	8,826				32.22 /sf	186,788	137,433	56 /sf	324,221	0.01%
					S-O-G Const Joints > 1'	10869.6 sf	3,913	353,302	16,549				34.03 /sf	369,851	272,331	59 /sf	642,182	0.01%
					Strip & Oil SOG Form	16666.8 sf	83	7,465	1,167				0.52 /sf	8,632	6,189	1 /sf	14,820	0.00%
					SOG Rebar	507.3 tn	7,610	780,065	958,797				3,427.68 /tn	1,738,862	1,073,124	5,543 /tn	2,811,986	0.06%
					Mesh Support - bricks	8405.85 ea	17	1,723	4,325				0.72 /ea	6,048	3,526	1 /ea	9,574	0.00%
					Finish- Hard Trowel	72464.4 sf	1,667	149,266					2.06 /sf	149,266	111,539	4 /sf	260,806	0.01%
					Pump Place Slab on Grade	8043.6 cy	9,652	1,025,192			23,163		130.33 /cy	1,048,356	759,468	225 /cy	1,807,823	0.04%
					4500 psi Concrete	8043.6 cy			1,689,156				210.00 /cy	1,689,156	884,001	320 /cy	2,573,157	0.06%
					Liquid Curing Compounds	72464.4 sf	217	19,474	57,066				1.06 /sf	76,539	44,416	2 /sf	120,955	0.00%
					Seal Floors	72464.4 sf	362	32,456	15,218				0.66 /sf	47,674	32,216	1 /sf	79,890	0.00%
					Div. 03 Concrete	72,464.400 hsf	25,492	2,546,906	2,751,103		23,163		73.43 /hsf	5,321,172	3,324,243	119.31 /hsf	8,645,414	0.20%
					Slab Slab	8,043.600 cy	25,492	2,546,906	2,751,103		23,163		661.54 /cy	5,321,172	3,324,243	1,074.82 /cy	8,645,414	0.20%
			Unidentified Process Pipe		Unidentified Process Pipe													
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder - Additional Unidentified Process Piping	1 ls			11,154,000				11,154,000.00 /ls	11,154,000	5,837,325	16,991,325 /ls	16,991,325	0.39%
					Estimate Placeholder - Additional Unidentified Installation Labor/Equip.	1 ls	41,310	4,131,000			1,155,000		5,286,000.00 /ls	5,286,000	3,522,624	8,808,624 /ls	8,808,624	0.20%
					Div. 40 Process Integration (Process Piping)	150.000 mgd	41,310	4,131,000	11,154,000		1,155,000		109,600.00 /mgd	16,440,000	9,359,949	171,999.66 /mgd	25,799,949	0.58%
					Unidentified Process Pipe Unidentified Process Pipe	150.000 MGD	41,310	4,131,000	11,154,000		1,155,000		109,600.00 /MGD	16,440,000	9,359,949	171,999.66 /MGD	25,799,949	0.58%
			260. Product Water Wet Well Tank (Clearwell/Chlor Contact Tank)/High Svc Pump Sta			1.000 ls	179,145	17,512,032	19,774,939	30,484,834	1,230,497		69,002,301.33 /ls	69,002,301	34,021,950	103,024,251.09 /ls	103,024,251	2.34%
			260.-270		Product Water Wet Well to Effluent Pump Piping													
				* unassigned *														
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder - vertical piping from wet well to pumps	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					260.-270 Product Water Wet Well to Effluent Pump Piping								/lf			/lf		
			270.		Effluent Pump													
				* unassigned *														
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
			Distribution Pump		Distribution Pump													
				Div. 46	Water and Wastewater Equipment													
					Final Distribution Pumps 5 Duty + 1 SB	6 ea	1,440	150,111	36,000		11,965	33,000,000	5,533,012.78 /ea	33,198,077	17,405,045	8,433,854 /ea	50,603,122	1.15%
					Div. 46 Water and Wastewater Equipment	150.000 mgd	1,440	150,111	36,000		11,965	33,000,000	221,320.51 /mgd	33,198,077	17,405,045	337,354.15 /mgd	50,603,122	1.15%
					Distribution Pump Distribution Pump	6.000 ea	1,440	150,111	36,000		11,965	33,000,000	5,533,012.78 /ea	33,198,077	17,405,045	8,433,853.64 /ea	50,603,122	1.15%
					270. Effluent Pump	1.000 ls	1,440	150,111	36,000		11,965	33,000,000	33,198,076.68 /ls	33,198,077	17,405,045	50,603,121.87 /ls	50,603,122	1.15%
		270.-280			Effluent Pump to Distribution Piping													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					270.-280 Effluent Pump to Distribution Piping								/lf			/lf		
		280.			Distribution													
			* unassigned *															
				Div. 40	Process Integration (Process Piping)													
					Estimate Placeholder	1.000 ls							/ls			/ls		
					Div. 40 Process Integration (Process Piping)	150.000 mgd							/mgd			/mgd		
					280. Distribution	1.000 ls							/ls			/ls		
					011. - PWPS Primary Water Pumping System	150.000 MGD	180,585	17,662,143	19,810,939	30,484,834	1,242,462	33,000,000	681,335.85 /MGD	102,200,378	51,426,995	1,024,182.49 /MGD	153,627,373	3.48%
014. - Site Prep					Site Prep & Restoration													
		020.			MBR Filtrate Tank													
			Earthwork		Earthwork													
				Div. 31	Earthwork													
					Bldg Excavation Haul Offsite	1112.514 cy	67	8,220		17,800	5,015	11,125	37.90 /cy	42,160	20,334	56 /cy	62,494	0.00%
					Bldg Fill Gravel	35.802 cy	4	479	1,729	573	214		83.65 /cy	2,995	1,557	127 /cy	4,552	0.00%
					Structure Sheeting 24'deep	1161.576 sf	74	7,752	52,271		1,217		52.72 /sf	61,240	33,663	82 /sf	94,902	0.00%
					Remove Sheeting 24'deep	1161.576 sf	34	3,523			553		3.51 /sf	4,077	2,867	6 /sf	6,944	0.00%
					Div. 31 Earthwork	1,112.510 cy	180	19,974	54,000	18,373	7,000	11,125	99.30 /cy	110,471	58,420	151.81 /cy	168,892	0.00%
					Earthwork Earthwork	35.800 cy	180	19,974	54,000	18,373	7,000	11,125	3,085.79 /cy	110,471	58,420	4,717.65 /cy	168,892	0.00%
					020. MBR Filtrate Tank	150.000 MGD	180	19,974	54,000	18,373	7,000	11,125	736.48 /MGD	110,471	58,420	1,125.95 /MGD	168,892	0.00%
		020-2.			Membrane Tanks for MBR													
			Earthwork		Earthwork													
				Div. 31	Earthwork													
					Bldg Excavation Haul Offsite	68712 cy	4,149	507,678		1,099,392	309,750	687,120	37.90 /cy	2,603,940	1,255,871	56 /cy	3,859,812	0.09%
					Bldg Fill Gravel	2061.36 cy	247	27,566	99,564	32,982	12,313		83.65 /cy	172,424	89,652	127 /cy	262,076	0.01%
					Remove Sheeting 24'deep	54576 sf	1,588	165,546			25,996		3.51 /sf	191,542	134,701	6 /sf	326,242	0.01%
					Remove Sheeting 24'deep	54576 sf	1,588	165,546			25,996		3.51 /sf	191,542	134,701	6 /sf	326,242	0.01%
					Div. 31 Earthwork		7,571	866,337	99,564	1,132,374	374,054	687,120	/cy	3,159,448	1,614,924	/cy	4,774,372	0.11%
					Earthwork Earthwork		7,571	866,337	99,564	1,132,374	374,054	687,120	/cy	3,159,448	1,614,924	/cy	4,774,372	0.11%
					020-2. Membrane Tanks for MBR	72,048.000 hsf	7,571	866,337	99,564	1,132,374	374,054	687,120	43.85 /hsf	3,159,448	1,614,924	66.27 /hsf	4,774,372	0.11%
		020-3.			Bioreactor Tanks fro MBR													
			Earthwork		Earthwork													
				Div. 31	Earthwork													
					Bldg Excavation Haul Offsite	400769 cy	24,197	2,961,081		6,412,304	1,806,644	4,007,690	37.90 /cy	15,187,719	7,324,985	56 /cy	22,512,704	0.51%
					Bldg Fill Gravel	12023.07 cy	1,443	160,783	580,714	192,369	71,814		83.65 /cy	1,005,681	522,902	127 /cy	1,528,582	0.03%
					Structure Sheeting 24'deep	99144 sf	6,345	661,616	4,461,480		103,894		52.72 /sf	5,226,990	2,873,207	82 /sf	8,100,197	0.18%
					Structure Sheeting 24'deep	99144 sf	6,345	661,616	4,461,480		103,894		52.72 /sf	5,226,990	2,873,207	82 /sf	8,100,197	0.18%
					Div. 31 Earthwork		38,331	4,445,095	9,503,674	6,604,673	2,086,247	4,007,690	/cy	26,647,380	13,594,301	/cy	40,241,681	0.91%
					Earthwork Earthwork		38,331	4,445,095	9,503,674	6,604,673	2,086,247	4,007,690	/cy	26,647,380	13,594,301	/cy	40,241,681	0.91%
					020-3. Bioreactor Tanks fro MBR	420,000.000 hsf	38,331	4,445,095	9,503,674	6,604,673	2,086,247	4,007,690	63.45 /hsf	26,647,380	13,594,301	95.81 /hsf	40,241,681	0.91%
		020-4.			MBR - Odor Control Facility													
			Earthwork		Earthwork													
				Div. 31	Earthwork													
					Bldg Excavation Haul Offsite	1390 cy	84	10,270		22,240	6,266	13,900	37.90 /cy	52,676	25,405	56 /cy	78,082	0.00%
					Bldg Fill Gravel	41.7 cy	5	558	2,014	667	249		83.65 /cy	3,488	1,814	127 /cy	5,302	0.00%
					Div. 31 Earthwork		89	10,828	2,014	22,907	6,515	13,900	/cy	56,164	27,219	/cy	83,383	0.00%
					Earthwork Earthwork		89	10,828	2,014	22,907	6,515	13,900	/cy	56,164	27,219	/cy	83,383	0.00%
					020-4. MBR - Odor Control Facility	12,060.000 hsf	89	10,828	2,014	22,907	6,515	13,900	4.66 /hsf	56,164	27,219	6.91 /hsf	83,383	0.00%
		089.			RO Feed Tank / RO Pump Building													
			Earthwork		Earthwork													
				Div. 31	Earthwork													
					Bldg Excavation Haul Offsite	17473.05 cy	1,055	129,100		279,569	78,768	174,731	37.90 /cy	662,166	319,361	56 /cy	981,527	0.02%
					Bldg Fill Gravel	524.4 cy	63	7,013	25,329	8,390	3,132		83.65 /cy	43,864	22,807	127 /cy	66,671	0.00%
					Structure Sheeting 24'deep	19784.25 sf	1,266	132,026	890,291		20,732		52.72 /sf	1,043,049	573,350	82 /sf	1,616,400	0.04%
					Remove Sheeting 24'deep	19784.25 sf	576	60,012			9,424		3.51 /sf	69,435	48,830	6 /sf	118,266	0.00%
					Div. 31 Earthwork		2,960	328,150	915,620	287,959	112,056	174,731	/cy	1,818,515	964,348	/cy	2,782,863	0.06%
					Earthwork Earthwork		2,960	328,150	915,620	287,959	112,056	174,731	/cy	1,818,515	964,348	/cy	2,782,863	0.06%
					089. RO Feed Tank / RO Pump Building	57,255.600 sf	2,960	328,150	915,620	287,959	112,056	174,731	31.76 /sf	1,818,515	964,348	48.60 /sf	2,782,863	0.06%
		139.			RO Facility													
			Earthwork		Earthwork													
				Div. 31	Earthwork													
					Bldg Excavation Haul Offsite	15571.2 cy	940	115,048		249,139	70,194	155,712	37.90 /cy	590,093	284,600	56 /cy	874,693	0.02%
					Bldg Fill Gravel	468.3 cy	56	6,263	22,619	7,493	2,797		83.65 /cy	39,171	20,367	127 /cy	59,538	0.00%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Div. 31 Earthwork		996	121,310	22,619	256,632	72,991	155,712	/cy	629,264	304,967	/cy	934,231	0.02%
					Earthwork Earthwork		996	121,310	22,619	256,632	72,991	155,712	/cy	629,264	304,967	/cy	934,231	0.02%
					139. RO Facility	137,563.050 sf	996	121,310	22,619	256,632	72,991	155,712	4.57 /sf	629,264	304,967	6.79 /sf	934,231	0.02%
		190.			UV/AOP													
			Earthwork		Earthwork													
				Div. 31	Earthwork													
					Bldg Excavation Haul Offsite	3193.05 cy	193	23,592		51,089	14,394	31,931	37.90 /cy	121,005	58,360	56 /cy	179,366	0.00%
					Bldg Fill Gravel	96.45 cy	12	1,290	4,659	1,543	576		83.65 /cy	8,068	4,195	127 /cy	12,262	0.00%
					Div. 31 Earthwork		204	24,882	4,659	52,632	14,970	31,931	/cy	129,073	62,555	/cy	191,628	0.00%
					Earthwork Earthwork		204	24,882	4,659	52,632	14,970	31,931	/cy	129,073	62,555	/cy	191,628	0.00%
					190. UV/AOP	150.000 MGD	204	24,882	4,659	52,632	14,970	31,931	860.49 /MGD	129,073	62,555	1,277.52 /MGD	191,628	0.00%
		199.			Chemical Building													
			Earthwork		Earthwork													
				Div. 31	Earthwork													
					Bldg Excavation Haul Offsite	2508.3 cy	151	18,533		40,133	11,307	25,083	37.90 /cy	95,056	45,845	56 /cy	140,901	0.00%
					Bldg Fill Gravel	75.6 cy	9	1,011	3,651	1,210	452		83.65 /cy	6,324	3,288	127 /cy	9,612	0.00%
					Div. 31 Earthwork		161	19,544	3,651	41,342	11,759	25,083	/cy	101,379	49,133	/cy	150,512	0.00%
					Earthwork Earthwork		161	19,544	3,651	41,342	11,759	25,083	/cy	101,379	49,133	/cy	150,512	0.00%
					199. Chemical Building	32,869.500 sf	161	19,544	3,651	41,342	11,759	25,083	3.08 /sf	101,379	49,133	4.58 /sf	150,512	0.00%
		209.			Lime Storage / Clarifyer Building													
			Earthwork		Earthwork													
				Div. 31	Earthwork													
					Bldg Excavation Haul Offsite	1515.6 cy	92	11,198		24,250	6,832	15,156	37.90 /cy	57,436	27,701	56 /cy	85,137	0.00%
					Bldg Fill Gravel	45.6 cy	5	610	2,202	730	272		83.65 /cy	3,814	1,983	127 /cy	5,797	0.00%
					Div. 31 Earthwork		97	11,808	2,202	24,979	7,105	15,156	/cy	61,250	29,684	/cy	90,934	0.00%
					Earthwork Earthwork		97	11,808	2,202	24,979	7,105	15,156	/cy	61,250	29,684	/cy	90,934	0.00%
					209. Lime Storage / Clarifyer Building	19,858.800 sf	97	11,808	2,202	24,979	7,105	15,156	3.08 /sf	61,250	29,684	4.58 /sf	90,934	0.00%
		229.			Co2 Building													
			Earthwork		Earthwork													
				Div. 31	Earthwork													
					Bldg Excavation Haul Offsite	447.45 cy	27	3,306		7,159	2,017	4,475	37.90 /cy	16,957	8,178	56 /cy	25,135	0.00%
					Bldg Fill Gravel	44.4 cy	5	594	2,145	710	265		83.65 /cy	3,714	1,931	127 /cy	5,645	0.00%
					Div. 31 Earthwork		32	3,900	2,145	7,870	2,282	4,475	/cy	20,671	10,109	/cy	30,780	0.00%
					Earthwork Earthwork		32	3,900	2,145	7,870	2,282	4,475	/cy	20,671	10,109	/cy	30,780	0.00%
					229. Co2 Building	5,870.000 sf	32	3,900	2,145	7,870	2,282	4,475	3.52 /sf	20,671	10,109	5.24 /sf	30,780	0.00%
		239.			Chlorine Building													
			Earthwork		Earthwork													
				Div. 31	Earthwork													
					Bldg Excavation Haul Offsite	1939.5 cy	117	14,330		31,032	8,743	19,395	37.90 /cy	73,500	35,449	56 /cy	108,949	0.00%
					Bldg Fill Gravel	58.65 cy	7	784	2,833	938	350		83.65 /cy	4,906	2,551	127 /cy	7,457	0.00%
					Div. 31 Earthwork		124	15,114	2,833	31,970	9,093	19,395	/cy	78,406	38,000	/cy	116,406	0.00%
					Earthwork Earthwork		124	15,114	2,833	31,970	9,093	19,395	/cy	78,406	38,000	/cy	116,406	0.00%
					239. Chlorine Building	25,419.150 sf	124	15,114	2,833	31,970	9,093	19,395	3.09 /sf	78,406	38,000	4.58 /sf	116,406	0.00%
		260.			Product Water Wet Well Tank (Clearwell/Chlor Contact Tank)/High Svc Pump Sta													
			Earthwork		Earthwork													
				Div. 31	Earthwork													
					Bldg Excavation Haul Offsite	73767.3 cy	4,454	545,030		1,180,277	332,539	737,673	37.90 /cy	2,795,518	1,348,269	56 /cy	4,143,787	0.09%
					Bldg Fill Gravel	2213.25 cy	266	29,598	106,900	35,412	13,220		83.65 /cy	185,129	96,258	127 /cy	281,387	0.01%
					Structure Sheeting 24'deep	52386.15 sf	3,353	349,587	2,357,377			54,896	52.72 /sf	2,761,860	1,518,158	82 /sf	4,280,019	0.10%
					Remove Sheeting 24'deep	52386.15 sf	1,524	158,903			24,953		3.51 /sf	183,856	129,296	6 /sf	313,152	0.01%
					Div. 31 Earthwork		9,596	1,083,118	2,464,277	1,215,689	425,608	737,673	/cy	5,926,364	3,091,980	/cy	9,018,344	0.20%
					Earthwork Earthwork		9,596	1,083,118	2,464,277	1,215,689	425,608	737,673	/cy	5,926,364	3,091,980	/cy	9,018,344	0.20%
					260. Product Water Wet Well Tank (Clearwell/Chlor Contact Tank)/High Svc Pump Sta	1.000 Is	9,596	1,083,118	2,464,277	1,215,689	425,608	737,673	5,926,364.08 /Is	5,926,364	3,091,980	9,018,344.44 /Is	9,018,344	0.20%
		260.E			High Service PS Electrical Room													
			Earthwork		Earthwork													
				Div. 31	Earthwork													
					Bldg Excavation Haul Offsite	1576.95 cy	95	11,651		25,231	7,109	15,770	37.90 /cy	59,761	28,822	56 /cy	88,583	0.00%
					Bldg Fill Gravel	65.25 cy	8	873	3,152	1,044	390		83.65 /cy	5,458	2,838	127 /cy	8,296	0.00%
					Div. 31 Earthwork		103	12,524	3,152	26,275	7,499	15,770	/cy	65,219	31,660	/cy	96,879	0.00%
					Earthwork Earthwork		103	12,524	3,152	26,275	7,499	15,770	/cy	65,219	31,660	/cy	96,879	0.00%
					260.E High Service PS Electrical Room	13,773.900 sf	103	12,524	3,152	26,275	7,499	15,770	4.74 /sf	65,219	31,660	7.03 /sf	96,879	0.00%
		550.			Site Restoration & Misc Site Improvements													
			Final Site Restoration & Misc Site		Final Site Restoration & Misc Site													
				Div. 32	Exterior Improvements													
					Final Restoration of Site Work: Paving, Seeding & Fencing	150 Is				7,630,500			50,870.00 /Is	7,630,500	2,562,621	67,954 /Is	10,193,121	0.23%
					Div. 32 Exterior Improvements					7,630,500			/Is	7,630,500	2,562,621	/Is	10,193,121	0.23%
					Final Site Restoration & Misc Site					7,630,500			/MGD	7,630,500	2,562,621	/MGD	10,193,121	0.23%
					550. Site Restoration & Misc Site Improvements	150.000 MGD				7,630,500			50,870.00 /MGD	7,630,500	2,562,621	67,954.14 /MGD	10,193,121	0.23%
		600.			EB2 - RO Electrical Building													
			Earthwork		Earthwork													
				Div. 31	Earthwork													
					Bldg Excavation Haul Offsite	1657.8 cy	100	12,249		26,525	7,473	16,578	37.90 /cy	62,825	30,300	56 /cy	93,125	0.00%
					Bldg Fill Gravel	50.85 cy	6	680	2,456	814	304		83.65 /cy	4,253	2,212	127 /cy	6,465	0.00%

Pathway / Scenario	Location-1	Process System	Scope of Work -	CSI Division #	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Subcontract Amount	Const Equip Amount	Process Equipment / Other	Total Cost/Unit	Total Amount	Indirect Addon Costs	Grand Total Price UP	Grand Total Price	% Total
					Div. 31 Earthwork		106	12,929	2,456	27,338	7,777	16,578	/cy	67,078	32,512	/cy	99,590	0.00%
					Earthwork Earthwork		106	12,929	2,456	27,338	7,777	16,578	/cy	67,078	32,512	/cy	99,590	0.00%
					600. EB2 - RO Electrical Building	14,316.600 sf	106	12,929	2,456	27,338	7,777	16,578	4.69 /sf	67,078	32,512	6.96 /sf	99,590	0.00%
		610.			Battery Pad Generator													
			Earthwork		Earthwork													
				Div. 31	Earthwork													
					Bldg Excavation Haul Offsite	502.2 cy	30	3,711		8,035	2,264	5,022	37.90 /cy	19,032	9,179	56 /cy	28,210	0.00%
					Bldg Fill Gravel	39.15 cy	5	524	1,891	626	234		83.65 /cy	3,275	1,703	127 /cy	4,977	0.00%
					Div. 31 Earthwork		35	4,234	1,891	8,662	2,498	5,022	/cy	22,306	10,882	/cy	33,188	0.00%
					Earthwork Earthwork		35	4,234	1,891	8,662	2,498	5,022	/cy	22,306	10,882	/cy	33,188	0.00%
					610. Battery Pad Generator	1.000 Is	35	4,234	1,891	8,662	2,498	5,022	22,306.35 /Is	22,306	10,882	33,187.95 /Is	33,188	0.00%
		620.			Generator Pad													
			Earthwork		Earthwork													
				Div. 31	Earthwork													
					Bldg Excavation Haul Offsite	3551.85 cy	214	26,243		56,830	16,012	35,519	37.90 /cy	134,602	64,918	56 /cy	199,521	0.00%
					Bldg Fill Gravel	106.95 cy	13	1,430	5,166	1,711	639		83.65 /cy	8,946	4,651	127 /cy	13,597	0.00%
					Div. 31 Earthwork		227	27,673	5,166	58,541	16,650	35,519	/cy	143,548	69,570	/cy	213,118	0.00%
					Earthwork Earthwork		227	27,673	5,166	58,541	16,650	35,519	/cy	143,548	69,570	/cy	213,118	0.00%
					620. Generator Pad	1.000 Is	227	27,673	5,166	58,541	16,650	35,519	143,548.44 /Is	143,548	69,570	213,118.15 /Is	213,118	0.00%
		630.			EB3 UV AOP Electric Building													
			Earthwork		Earthwork													
				Div. 31	Earthwork													
					Bldg Excavation Haul Offsite	1141.35 cy	69	8,433		18,262	5,145	11,414	37.90 /cy	43,253	20,861	56 /cy	64,114	0.00%
					Bldg Fill Gravel	52.05 cy	6	696	2,514	833	311		83.65 /cy	4,354	2,264	127 /cy	6,618	0.00%
					Div. 31 Earthwork		75	9,129	2,514	19,094	5,456	11,414	/cy	47,607	23,125	/cy	70,731	0.00%
					Earthwork Earthwork		75	9,129	2,514	19,094	5,456	11,414	/cy	47,607	23,125	/cy	70,731	0.00%
					630. EB3 UV AOP Electric Building	15,684.750 sf	75	9,129	2,514	19,094	5,456	11,414	3.04 /sf	47,607	23,125	4.51 /sf	70,731	0.00%
		640.			EB4 MF/Ozone/BAC Electrical Building													
			Earthwork		Earthwork													
				Div. 31	Earthwork													
					Bldg Excavation Haul Offsite	832.65 cy	50	6,152		13,322	3,754	8,327	37.90 /cy	31,554	15,219	56 /cy	46,773	0.00%
					Bldg Fill Gravel	87.75 cy	11	1,173	4,238	1,404	524		83.65 /cy	7,340	3,816	127 /cy	11,156	0.00%
					Div. 31 Earthwork		61	7,326	4,238	14,726	4,278	8,327	/cy	38,894	19,035	/cy	57,929	0.00%
					Earthwork Earthwork		61	7,326	4,238	14,726	4,278	8,327	/cy	38,894	19,035	/cy	57,929	0.00%
					640. EB4 MF/Ozone/BAC Electrical Building	10,956.450 sf	61	7,326	4,238	14,726	4,278	8,327	3.55 /sf	38,894	19,035	5.29 /sf	57,929	0.00%
		640.			EB4 MF/Ozone/BAC Electrical Building													
			Earthwork		Earthwork													
				Div. 31	Earthwork													
					Bldg Excavation Haul Offsite	832.65 cy	50	6,152		13,322	3,754	8,327	37.90 /cy	31,554	15,219	56 /cy	46,773	0.00%
					Bldg Fill Gravel	87.75 cy	11	1,173	4,238	1,404	524		83.65 /cy	7,340	3,816	127 /cy	11,156	0.00%
					Div. 31 Earthwork		61	7,326	4,238	14,726	4,278	8,327	/cy	38,894	19,035	/cy	57,929	0.00%
					Earthwork Earthwork		61	7,326	4,238	14,726	4,278	8,327	/cy	38,894	19,035	/cy	57,929	0.00%
					640. EB4 MF/Ozone/BAC Electrical Building	10,956.450 sf	61	7,326	4,238	14,726	4,278	8,327	3.55 /sf	38,894	19,035	5.29 /sf	57,929	0.00%
		180. - 150 BBPL			014. - Site Prep Site Prep & Restoration	150.000 MGD	60,948	7,023,872	13,096,674	17,482,538	3,173,837	5,976,618	311,690.26 /MGD	46,753,539	22,595,045	462,323.89 /MGD	69,348,584	1.57%
					150 MGD Backbone Pipeline Placeholder													
		* unassigned *																
			* unassigned *															
				* unassigned *														
					Estimate Placeholder - Backbone Pipeline	1.000 Is							/Is			/Is		
					180. - 150 BBPL 150 MGD Backbone Pipeline Placeholder	150.000 MGD							/MGD			/MGD		
					01.02.01 Phase 2 (150 MGD) - 90 mgd IPR to Canyon SG + up to 60 mgd to Weymouth	150.000 MGD	2,683,503	263,726,021	287,456,577	390,408,069	39,211,419	470,052,215	9,672,362.02 /MGD	1,450,854,302	740,716,613	14,610,472.77 /MGD	2,191,570,915	49.67%

Estimate Totals										
Description	Amount	Totals		Hours	Rate		Cost Basis	Cost per Unit	Percent of Total	
Labor	456,177,393			2,683,503				3,966,759.943 /MGD	10.34%	
Overtime - 50 hr wk (w/ 1.5) 10%							C			
Material	437,893,856							3,807,772.662 /MGD	9.93%	
Subcontract	521,522,380							4,534,977.218 /MGD	11.82%	
Construction Equipment	59,928,347			323,943				521,116.058 /MGD	1.36%	
Process Equipment/Other Misc.	716,048,939							6,226,512.512 /MGD	16.23%	
Subtotal - Construction Cost w/ OH&P	2,191,570,915	2,191,570,915						19,057,138.391 /MGD	49.67%	49.67%
GC Allowances <list as req'd>							L			
Allowance 2- Non-Allocatable							L			
Allowance 3- Non-Allocatable							L			
Total Construction Costs (TCC)		2,191,570,915						19,057,138.391 /MGD		49.67%
BABA Allowances	2,874,566				1.00 %		C	24,996.224 /MGD	0.07%	
Allowance 1- Non-Allocatable Tariffs	37,875,440				5.00 %		C	329,351.649 /MGD	0.86%	
Construction Contingency	547,892,729				25.00 %		T	4,764,284.599 /MGD	12.42%	
Total Construction Cost w/ Contingency	588,642,735	2,780,213,650						24,175,770.870 /MGD	13.34%	63.02%
Engineering & Design - Phase 1	55,604,273				2.00 %		T	483,515.417 /MGD	1.26%	
Engineering & Design - Phase 2	83,406,409				3.00 %		T	725,273.126 /MGD	1.89%	
Eng Services During Construct	166,812,819				6.00 %		T	1,450,546.252 /MGD	3.78%	
Engineering & Design Contingency (%)	139,010,682				5.00 %		T	1,208,788.543 /MGD	3.15%	
Engineering & Design Subtotal	444,834,183	3,225,047,833						28,043,894.200 /MGD	10.08%	73.10%
CM Fee - Phase 1							T			
CM Fee - Phase 2							T			
CMAR Fee		3,225,047,833						28,043,894.200 /MGD		73.10%
Owner's Allowance - Is							L			
Owner's Contingency	161,252,392				5.00 %		T	1,402,194.710 /MGD	3.65%	
Owner's Management Costs	225,753,348				7.00 %		T	1,963,072.594 /MGD	5.12%	
Owner's Soft Costs, Land, Legal etc.	64,500,957				2.00 %		T	560,877.884 /MGD	1.46%	
Owner's Costs and Allowances	451,506,697	3,676,554,530						31,970,039.391 /MGD	10.23%	83.33%
Escalation (4% per year to mid-point (2032))	735,310,906				20.00 %		T	6,394,007.879 /MGD	16.67%	
Grand Total:	735,310,906	4,411,865,436						38,364,047.270 /MGD	16.67%	100.00%
Total		4,411,865,436						38,364,047.270 /MGD		

**Appendix D Basis of Engineer's Conceptual-Level Opinion
of Probable Construction Cost for Pure Water
Conveyance Facilities, Black & Veatch, 2025**

FINAL DRAFT

BASIS OF ENGINEER'S CONCEPTUAL-LEVEL OPINION OF PROBABLE CONSTRUCTION COST FOR THE PURE WATER CONVEYANCE FACILITIES

B&V PROJECT NO. 410259

PREPARED FOR

Metropolitan Water District of Southern California

17 DECEMBER 2025



In Association With:



1.0 Introduction

The Metropolitan Water District of Southern California (Metropolitan) contracted Black & Veatch, with support from CDM Smith and Delve Underground (the BV Team), to complete conceptual-level design engineering services for the Pure Water Southern California (PWSC or Program) conveyance system and to prepare an Engineer's Opinion of Probable Construction Cost (OPCC). This Basis of Estimate (BOE) documents the OPCC's scope, methodology, assumptions, inclusions, exclusions, and accuracy.

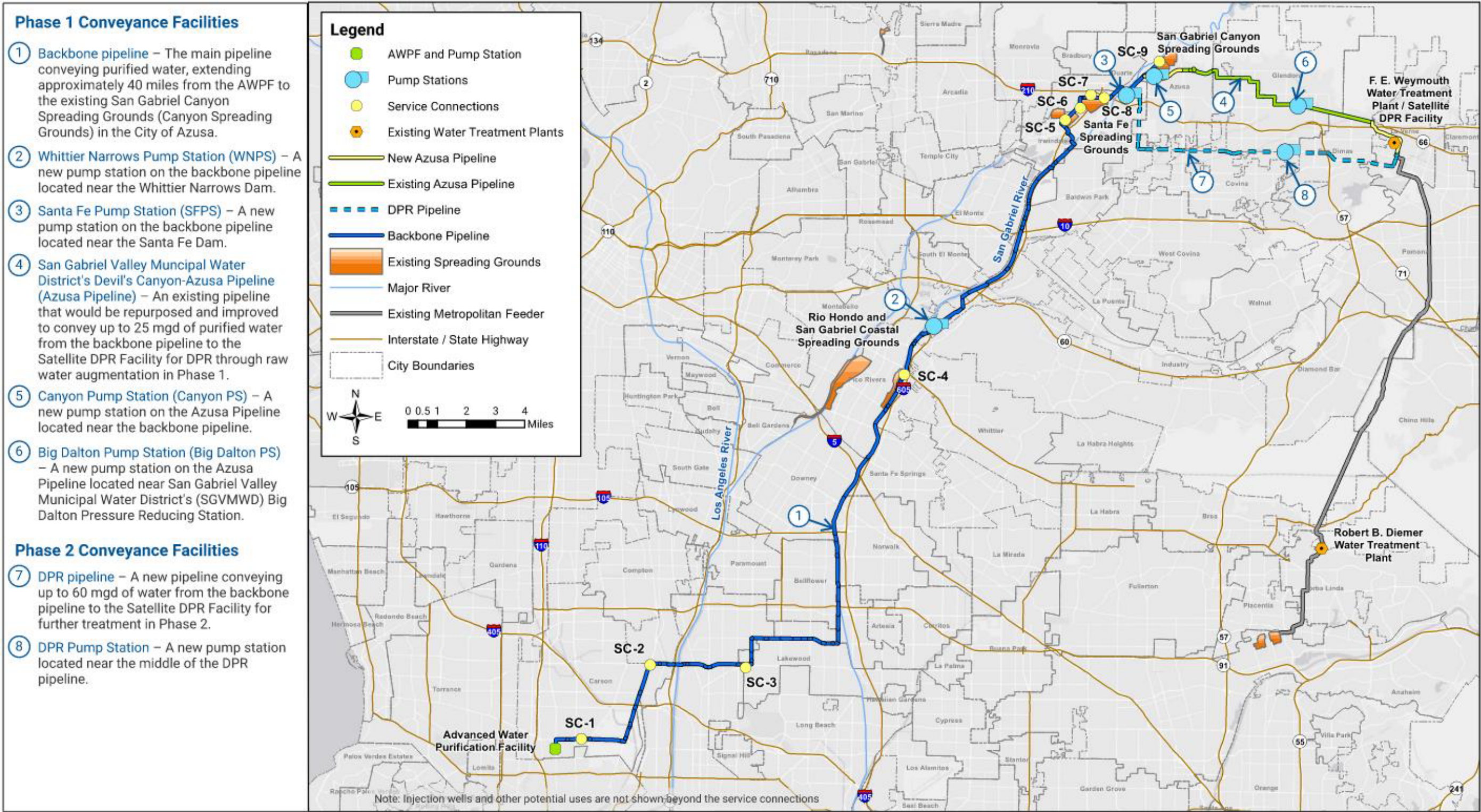
1.1 Project Information

PWSC is a partnership between Metropolitan and the Los Angeles County Sanitation Districts (Sanitation Districts) to pursue the creation of a new, climate-resilient water supply by purifying the region's largest untapped source of treated wastewater, which is currently discharged to the ocean. Specifically, PWSC would include new treatment facilities and a new conveyance system to pump the purified water to select locations for beneficial reuse throughout Metropolitan's service area. This OPCC covers the conveyance system components. Metropolitan envisions implementing the Program in two phases. Phase 1 would produce approximately 115 million gallons per day (mgd) and Phase 2 would expand the Program capacity to 150 mgd.

The conveyance system would be comprised of a main "backbone pipeline" with two pump stations – the Whittier Narrows Pump Station (WNPS) and the Santa Fe Pump Station (SFPS). The 84-inch diameter backbone pipeline would be sized to convey 150 million gallons per day (mgd) and would extend approximately 40 miles from the new advanced water purification facility (AWPF) to the existing San Gabriel Canyon Spreading Grounds in the City of Azusa. The backbone pipeline would include nine service connections to deliver water to member agencies and recharge facilities. The backbone pipeline has been divided into eight reaches (Reaches 1 through 8), with Reach 8 further divided into Reach 8a and 8b.

To achieve raw water augmentation for direct potable reuse (DPR) in Phase 1, approximately ten miles of the San Gabriel Valley Municipal Water District's (SGVMWD's) existing 30-inch diameter Azusa Pipeline would be temporarily repurposed to send up to 25 mgd from the backbone pipeline east to the Satellite DPR Facility at Metropolitan's F. E. Weymouth Water Treatment Plant (Weymouth Plant). To repurpose the Azusa Pipeline, two new pump stations would be required, the Canyon Pump Station (PS) and the Big Dalton PS, as well as approximately 3 miles of new 30-inch diameter pipeline. The condition of the existing 30-inch pipeline is not fully known and may require rehabilitation to reuse.

DPR for Phase 2 would include a new 54-inch diameter DPR pipeline and DPR PS sized for 60 mgd. The DPR pipeline would extend approximately ten miles from the backbone pipeline at the SFPS to the Satellite DPR Facility. The DPR pipelines would connect to Metropolitan's existing infrastructure near the Weymouth Plant. A Program overview is provided on Figure 1-1.



It should be noted that this Engineer's OPCC is based on the planning-level information and is intended to provide a cost range to assist with planning efforts. Any pipeline alignment refinements that occur after this cost update will be captured in the future OPCCs that will be prepared as part of the preliminary and final design of the respective component. Final costs will depend on actual labor and material costs, competitive market conditions, final scope, implementation schedule and contract packaging, and other variable factors, such as market conditions.

1.2 OPCC Classification Level

The OPCC classification level varies for the major components of the conveyance system based on the level of design definition. Components that had a greater level of definition received a Class 4 estimate in accordance with the American Association of Cost Estimators (AACE) standards, while components that had lower levels of definition received a Class 5 estimate. Class 4 estimates have a level of accuracy of -30% to +50%. Class 5 estimates have a level of accuracy of -50% to +100%.

Table 1-1 presents the OPCC classification level for each major component of the conveyance system.

Table 1-1. OPCC Classification Levels

Description	AACE Classification Level
Backbone Pipeline	Class 4
Backbone Pump Stations	Class 4
Phase 1 and 2 DPR Conveyance Facilities, including the DPR Pipeline, DPR Pump Stations, improvements to the Azusa Pipeline, Canyon PS, Big Dalton PS, and improvements to the Weymouth Plant	Class 5

1.3 Estimate Construction Cost Contingency

Estimate contingencies vary as a function of the design definition, as well as the level of effort applied to the preparation of the estimate. For a Class 4 and 5 estimate, the AACE International recommends using a contingency between 30 and 50 percent.

The estimating team assessed the design documents listed in Section 2.0 to generate this estimate. Based on this assessment, a contingency of 35 percent was applied to this OPCC, covering construction cost contingency based on the level of design definition.

It is anticipated that as the design progresses for the various facilities, the level of definition will increase and the contingency used in future estimates would decrease accordingly.

1.4 Detailed Scope of Work

1.4.1 Backbone Pipeline

Reach 1 through 8a of the backbone pipeline would be comprised of 84-inch inner diameter welded steel pipe (WSP), fabricated with steel plates or with coil steel for spiral-seam pipe. Reach 8b would be comprised of 48-inch inner diameter WSP. The pipelines would have working and design pressures as detailed in Section 6.1.4 of the Conceptual Design Report (CDR). The pipe interior would be lined with a polyurethane coating system, and the pipe exterior would be coated with a dielectric coating system, as specified in the CDR Section 6.1.8.

Sectionalizing valves would be 54-inch conical plug valves with electric motor actuators located in below grade valve vaults.

Service connections would consist of an isolation valve and a revenue flow meter, each installed in separate below grade vaults, and a check valve installed downstream of each flow meter. The revenue flow meter would be a Metropolitan standard venturi meter. The type and number of isolation valves varies depending on if the service connection is serving a typical pressurized system or a gravity fed spreading basin.

The pipeline would include appurtenant structures, including air/vacuum release valves, pump wells, blow off assemblies, and access manways. Each appurtenance would be located in a 9-foot diameter concrete manhole at its connection to the pipe.

The construction would also include removal and relocation of existing utilities, roadway and site restorations, and other required work.

1.4.2 Phase 1 DPR – Repurposing the Azusa Pipeline

The Phase 1 DPR pipeline includes repurposing the existing Azusa Pipeline. The improvements required to do this would include approximately 16,500 linear feet of new 30-inch inner diameter WSP to connect the Azusa Pipeline to the backbone pipeline on the west end and to Metropolitan's infrastructure near the Weymouth Plant on the east end. An isolation valve would be required at the connection to Metropolitan's existing infrastructure. Additional 30-inch piping and isolation valves would be required to bypass the Big Dalton Pressure Reducing Station. The condition of the existing Azusa Pipeline is not fully known. As such, an allowance has been provided for the rehabilitation of select areas of the existing pipeline, including the improvements at the Big Dalton Pressure Reducing Station and the connection to the La Verne Pipeline.

1.4.3 Phase 2 DPR Pipeline

The Phase 2 DPR pipeline would be comprised of 54-inch inner diameter WSP. The Phase 2 DPR pipeline was not studied at the same level of detail as the backbone pipeline and is only estimated at a Class 5 level with no sectionalizing valves or service connections assumed.

The pipeline would include appurtenant structures, including air/vacuum release valves, pump wells, blow off assemblies, and access manways. Each appurtenance would be located in a 9-foot diameter concrete manhole at its connection to the pipe.

1.4.4 Improvements at Weymouth Plant

The DPR pipelines would connect to existing infrastructure near the Weymouth Plant. Based on discussions with Metropolitan's operations staff, three tie-in connections are assumed for greater operational flexibility. As such, the connections would be on the La Verne Pipeline north of the Upper Feeder Junction Structure, the Yorba Linda Feeder south of the Upper Feeder Junction Structure, and the influent line into the Weymouth Plant west of the Upper Feeder Junction Structure. At each connection, new sectionalizing valves would be provided for isolation. Flow meters would be provided to measure flow to the Weymouth Plant and to the Robert B. Diemer Water Treatment Plant.

1.4.5 Pump Stations

Pump station cost opinions are based on horizontal split case pumps and would include a main pump building, electrical building, electrical substation/transformer farm, surge tank area, air compressor building, clearwell tanks, chemical building (where applicable), and administrative area. Each pump station would be as follows:

- The WNPS would have six pumps (5 duty / 1 standby) which would pump to the clearwell of the subsequent pump station. Each pump would be rated for 30 mgd at 465 feet of head. The WNPS is assumed to have a chemical booster facility.
- The SFPS would have two sets of pumps, which would be installed incrementally.
 - Set A would be installed in Phase 1 and would pump to the Canyon Spreading Grounds and the existing Azusa Pipeline. Set A would have 3 pumps (2 duty / 1 standby) rated at 20 mgd each at 130 feet of head.
 - Set B would be installed in Phase 2 and would pump east to the DPR pipeline and DPR PS. Set B would have four pumps (3 duty / 1 standby) rated at 20 mgd each at 350 feet of head.
- The Canyon PS would have 3 pumps (2 duty / 1 standby) rated at 12.5 mgd each at 475 feet of head. The Canyon PS is assumed to have a chemical booster facility.
- The Big Dalton PS would have 3 pumps (2 duty / 1 standby) rated at 12.5 mgd each at 425 feet of head.
- The DPR PS would have 4 pumps (3 duty / 1 standby) rated at 20 mgd each at 325 feet of head. The DPR PS is assumed to have a chemical booster facility.

1.5 Estimate Development

This estimate was developed by an estimating team familiar with the project elements and details, consisting of the following:

- Lead Estimating and Quality Control: CDM Smith
- Trenchless Estimating: Delve Underground
- Pump Stations and Phase 2 pipeline: Black & Veatch
- Quality Assurance: Black & Veatch

2.0 Estimate Documentation

The documents reviewed and utilized by the estimating team are as follows:

- *Pure Water Southern California Conveyance Facilities Conceptual Design Report*, Black & Veatch, April 2025 (CDR)
- *Pure Water Southern California Conveyance Facilities Feasibility Level Design Report*, Black & Veatch, May 2020 (FLDR)
- *Pure Water Southern California Conveyance System Reach 1 Preliminary Design Report and Preliminary Design Drawings*, BV Team, April 2024 (Reach 1 PDR)
- *Pure Water Southern California Conveyance System Reach 2 Preliminary Design Drawings*, HDR, April 2025 (Reach 2 PDR)
- *PWSC Cost Estimating Standards*, AECOM, September 2024
- *Residual Disinfectant Booster Pump Stations Analysis Draft Technical Memorandum*, Stantec, Carollo, and Trussell, October 2023 (Stantec Disinfectant BPS TM)
- *Metropolitan Standard Details*, May 2023

3.0 Estimating Methodology

3.1 Estimate Assumptions

The following assumptions have been made for the development of the OPCC:

- General:
 - This OPCC is based on the 7-foot backbone pipeline diameter option detailed in the CDR, with the refinements described below or noted elsewhere.
 - Minor refinements were made to the reach boundaries in the CDR to better align with Metropolitan’s current planning. The revised reach extents are as described in Table 3-1.

Table 3-1. Reach Extents

Item	Description	Miles	Diameter
Reach 1	Main St to e/o LA River	6.7	84 inches
Reach 2	e/o LA River to n/o 91 fwy	7.8	84 inches
Reach 3	n/o 91 fwy to s/o Foster Rd	2.4	84 inches
Reach 4	s/o Foster Rd to n/o Slauson Rd	3.9	84 inches
Reach 5	n/o Slauson Rd to WNPS	4.2	84 inches
Reach 6	WNPS to n/o San Jose Creek	2.9	84 inches
Reach 7	n/o San Jose Creek to n/o Live Oak Ln	5.9	84 inches
Reach 8a	n/o Live Oak Ln to SFPS	4.1	84 inches
Reach 8b	SFPS to Canyon Spreading Grounds	1.5	48 inches
Total		39.4	

- The alignment and construction methodology for Reaches 1 and 2 are based on their respective preliminary designs as of June 2025 with minor refinements to better align at their interface.
- Geotechnical information was limited to desktop research for Reaches 3 through 8b, Pump Stations, and DPR Phase 1 and Phase 2.
- All contracts are based on typical design-bid-build contracting methods.
- All equipment and material are furnished by the contractor. There is no Metropolitan furnished equipment (MFE).
- Construction would occur with “typical” conditions and do not account for non-typical constraints, including but not limited to:
 - Metropolitan’s typical construction contract holidays are observed.
 - Minimal weather delay days.

- No extended “no-work” or holiday moratorium durations.
- For open cut construction:
 - Work occurs 5-days per week, with each day consisting of a single 10-hour work shift.
 - Welded steel pipe is factory lined and coated.
 - Pipe spools are 20 feet long in roadways and 40 feet long in easements and private property.
 - Construction production averages 30 linear feet per day per crew within roadways and 100 linear feet per day per crew within easements or private property.
 - Trench width is 12’-0” for the 7-foot diameter pipeline and 9’-0” for the 4-foot diameter pipeline.
 - Depth of cover for the pipeline is:
 - Based on preliminary design profiles (June 2025) in Reaches 1 and 2.
 - 10 feet for open cut construction in streets and 7 feet in easements in Reaches 3 through 8.
 - Pipeline backfill:
 - Reaches 1 and 2 use slurry backfill for the pipe zone and trench zone to account for (1) the increased depth of cover as a result of utility congestion, (2) to minimize the potential for settlement, (3) the potential for contamination, and (4) to expedite construction to minimize traffic impacts.
 - The remaining Reaches use imported backfill material for the pipe zone and native soil for the trench zone as the assumed depth of cover is less and there is less potential for soil contamination.
 - Excavated soil handling and storage:
 - Excavated soil is transported to and stored at a staging area.
 - For Reaches 1 and 2, all soil is disposed of.
 - For the remaining reaches, soil required for backfill is transported back to the site.
 - Excess soil is transported to and disposed of at a landfill.
 - For Reaches 1 and 2, 30% of the excess soil volume is assumed to require a hazardous waste landfill per the Reach 1 PDR (April 2024).
 - For the remaining reaches, 6% of the excess soil volume is assumed to require a hazardous waste landfill.
- For trenchless/tunnel construction:
 - Each reach is its own contract requiring new equipment.

- Working hours:
 - Surface operations and shaft excavation work occurs 5 days per week, with each day consisting of a single 8-10-hour work shift.
 - Micro-tunneling and pipe jacking excavation and pipe installation occurs 5 days per week, with each day consisting of a single 8-10-hour work shift.
 - EPBM tunneling excavation and pipe work occurs 5 days per week, with three 8-hour shifts per day.
 - Some Saturday and Sunday maintenance occurs for micro-tunneling, pipe jacking, and EPBM tunneling.
- Shaft excavation support:
 - Excavations greater than 50-feet are supported with secant piles.
 - Excavations less than 50-feet are supported with sheet piles.
 - Rectangular shafts include internal bracing/walers.
 - Shaft excavation support is removed to 5-feet below grade at the end of construction.
 - No dewatering wells were assumed for sheet pile support but a nominal amount of inflow water (a few gallons per minute) would be removed.
- Minor utility relocations are required at shaft locations.
- Excavated diameter:
 - EPBM tunnels have 13-foot excavated diameter, which accounts for ventilation and tunnel train passing switch requirements.
 - Micro-tunneling and pipe jacking have 9-foot excavated diameter.
- All excavated soil is disposed; no re-use.
- Initial lining/casing:
 - EPBM tunnels' initial lining is pre-cast concrete segments.
 - Micro-tunneling and pipe jacking use steel casing pipe.
- Cellular grout is used for the annular backfill between casing/precast concrete segments and carrier pipe.
- Carrier pipe:
 - Carrier pipe is factory coated and lined for trenchless and tunnel installations. It should be noted that the factory coating of the carrier pipes for trenchless and tunnel installations was still being evaluated by Metropolitan as this OPCC was being prepared. If it is determined not to be required, this represents a potential cost savings for the program during future estimates.
 - For long tunnels, carrier pipe is field lined, as is common industry practice.

- 20-30 foot spool lengths used for the carrier pipe.
 - Carrier pipe joints are not coated.
- Roll-out facilities included with each EPBM tunnel.
- EPBM tunnels include jet grouted safe havens.
- For every reach except Reach 1, one microtunnel boring machine (MTBM) and/or pipe jacking operation is used and moved sequentially through the trenchless drives.
- Reach 1 has two EPBM's operating concurrently in separate headings.
- Reach 1 includes provision for encountering contaminated soil in the trenchless work, the remaining Reaches do not.
- Reach 1 includes shafts and riser piping for service connections 1 and 2.
- Reach 1 includes one southern launch shaft, one central launch/receiving shaft, and one north receiving shaft.
- For pump stations:
 - The pump station buildings are assumed to be of masonry construction (not pre-engineered) for budgeting purposes.
 - For planning purposes, the pump station building sizes shown on the drawings in the CDR were conservatively large. For this OPCC, the building footprints were refined based on similar size projects.
 - The WNPS includes the building, pumps, and facilities sized for 150 mgd (all constructed during Phase 1).
 - For the SFPS:
 - Phase 1 includes the building and facilities sized to accommodate the Set A (40 mgd) and Set B (60 mgd) pumps. However, only the Set A (40 mgd) pumps and associated electrical are installed.
 - Phase 2 includes the installation of the remaining Set B (60 mgd) pumps and associated electrical – no building expansion at Phase 2.
 - Expansion for potential future integration with other programs is not included in this cost estimate.
 - A demolition allowance has been included for the Big Dalton Pump Station as the only sites near its anticipated location require demolition of existing buildings or facilities.
 - Yard piping and sitework costs are allowances based on similar sized projects.
 - No dewatering costs are included.
 - No hazardous waste removal costs are included.

- The OPCC does not include any costs for special foundations like caissons, ground improvements, etc. It is assumed the pump station locations selected will be suitable for construction of facilities/scopes shown.
- Based on initial conversations with Southern California Edison (SCE) and the power requirements established in the CDR (Section 6.7.4), improvements to SCE's infrastructure may be required at the WNPS. Improvements may include a new substation, switchyard, and transmission lines. An allowance has been provided for these improvements based on the May 2025 AWPf power cost estimate completed by others and scaled down for the WNPS based on power demands.
- Power requirements at all other conveyance pump stations are anticipated to be small enough to not require additional substation facilities based on the power demands established in the CDR (Section 6.7.4).
- Chlorine booster pump facilities included at WNPS and Canyons PS for Phase 1, and at DPR PS for Phase 2. The costs of the facilities were based on the *Stantec Disinfectant BPS TM*.
- For service connections, the following mechanical equipment is included:

Table 3-2. Service Connections Mechanical Equipment

Service Connection	Metropolitan Owned Mechanical Facilities
SC-1	20-inch plug valve, 20-inch venturi meter, 20-inch check valve
SC-2	54-inch conical plug valve, 42-inch venturi meter, 42-inch check valve
SC-3	20-inch plug valve, 20-inch venturi meter, 20-inch check valve
SC-4	20-inch plug valve, 20-inch venturi meter, 20-inch check valve
SC-5	48-inch butterfly valve, 24-inch venturi meter, 42-inch check valve
SC-6	48-inch butterfly valve, 24-inch venturi meter, 42-inch check valve
SC-7	48-inch butterfly valve, 24-inch venturi meter, 42-inch check valve
SC-8	48-inch butterfly valve, 24-inch venturi meter, 42-inch check valve
SC-9	24-inch butterfly valve, 24-inch slide gate, 18-inch venturi meter, 24-inch check valve

- For DPR facilities:
 - This OPCC excludes the DPR satellite treatment facility and storage tanks, but includes lateral piping downstream of storage tanks, and valve and meter structures required to connect to existing pipelines/feeders.

- Phase 2 DPR pipeline and pump stations are sized for 60 mgd. This assumes the Azusa Pipeline would no longer be used in Phase 2, requiring the DPR pipeline to convey the full 60 mgd flow to the Weymouth Plant. In the event the Azusa Pipeline can be used long term to convey 25 mgd, the DPR pipeline and pump station would only need to be sized for 35 mgd, resulting in potential cost savings.
- The condition of the Azusa Pipeline is not known. An allowance has been included to account for minor rehabilitation of the existing pipeline, as well as new piping and isolation valves to bypass the Big Dalton Pressure Reducing Station and connections to the La Verne Pipeline.
- For Operating Expenses (OPEX):
 - OPEX costs were estimated for (1) labor, (2) maintenance and repair, and (3) energy costs for the pump stations. OPEX costs were not estimated for the pipeline.
 - Labor:
 - Annual labor costs were provided in June 2022 by Metropolitan for the AWPFS and the WNPS based on similar sized pump stations. The labor costs were escalated to May 2025 using the Engineering News Report (ENR) Construction Cost Indices (CCI) for Los Angeles.
 - Labor costs for the SFPS, Canyon PS, Big Dalton PS, and DPR PS were scaled down from the labor for the WNPS.
 - Labor for the Disinfection Booster PS's at WNPS and Canyon PS were based on the *Stantec Disinfectant BPS TM* escalated to May 2025.
 - Maintenance and repair costs:
 - Maintenance and repair costs cover (1) materials and consumables required for operation of pumps, motors, and mechanical equipment and (2) a budget allowance for repair and replacement costs.
 - Maintenance and repair costs were estimated for the AWPFS as part of the FLDR (May 2020) to provide a general order-of-magnitude for the material and repair costs required for the operation of the pumping stations. These costs were escalated to May 2025 using the ENR CCI for Los Angeles.
 - The WNPS is similar in size and was assumed to have the same maintenance and repair costs.
 - The maintenance and repair costs for the remaining pump stations were scaled down based on size.
 - Maintenance and repair costs for the Disinfection Booster PS's at WNPS and Canyon PS were based on the *Stantec Disinfectant BPS TM* escalated to May 2025.

- Energy costs:
 - An energy cost of \$0.15/kWh was used.
 - No costs for demand fees or other ancillary power costs are included.
 - Pump efficiency of 85% used for the AWPFS and 76% for all other pump stations based on initial pump selections.
 - The motor efficiency and variable frequency drive efficiency used was 95%, each.
 - For frictional hydraulic losses, a Hazen Coefficient of 130 was used.
 - Energy costs are based the full flow at each phase pumped 24 hours per day, 365 days per year; no downtime.

3.2 Estimate Exclusions

The following exclusions are made in the estimate. The exclusions are grouped into two categories, (1) items excluded from this OPCC but covered at the program level or (2) items excluded from this OPCC and not covered elsewhere:

- Items excluded from this OPCC but anticipated to be covered at the program level:
 - Pipeline laterals and other infrastructure downstream of the backbone service connections.
 - Provision/allowance for import tariffs and BABAA requirements.
 - Any costs for recharge facilities including improvements to existing facilities or purchase of new recharge facilities by Metropolitan.
 - AWPFS product water pump station and product water pipeline from the clearwell to the centerline of Main Street (included in the AWPFS OPCC prepared by others).
 - This OPCC is presented in May 2025 prices and was not escalated either to mid-point of construction or to start of construction for subsequent reaches.
 - Easements and land acquisition costs.
 - Soft costs were not included in this OPCC. These are typically applied as a percentage of the estimated construction costs to account for additional services. Some notable exclusions that are often covered by soft costs include:
 - CEQA permitting.
 - Metropolitan's staff time.
 - Engineering and construction management fees.
 - Public outreach.
 - Legal reviews.
 - Environmental and cultural resource monitoring during construction.

- Items excluded and not covered elsewhere:
 - Contingency for material cost fluctuation.
 - Fiber optic backbone conduit, pull boxes & cabling
 - Delays associated with environmental and cultural resource monitoring or findings.
 - Costs do not include backbone pipeline upsize or pump station expansions to accommodate water from other programs.
 - Differing site conditions.

3.3 Estimate Allowances

Allowances are included in the estimate to include the cost of unknown materials or quantities of known scope of work items, whether Lump Sum or Unit Priced. Allowances include all direct and indirect costs, as well as all contractor markups, unless indicated otherwise. Table 3-1 presents an overview of the allowances used in the estimate.

Table 3-3. Estimate Allowances Summary

Allowance	Description
Div. 00: Market / Location Difficulty Adjustment	Unit costs were derived from proprietary internal databases developed from similar projects in other markets / locations. This allowance was provided to adjust labor and equipment pricing to reflect the Los Angeles market.
Div. 00: Construction Activities Public Outreach (Non-Labor)	This allowance covers typical public outreach materials required of the Contractor by Div. 00 during construction.
Div. 00: Maintenance of Traffic	Traffic control requirements have not been defined at this conceptual level. This allowance covers the undefined features of the traffic control requirements which are not otherwise covered in the direct costs, such as reprogramming of traffic lights.
Div. 00: CEQA Mitigation Rules & Implementation	This allowance covers scope of work items that may be imposed on the Contractor as a result of the CEQA process and is based on the estimator's experience on similar projects.
Div. 02: Site Restoration not otherwise identified	This allowance covers site restoration not covered in the direct costs, which could include damage to pavement, curbs, gutters, driveways, etc. The allowance was based on the estimator's experience on similar projects and the existing conditions.
Div. 02: HAZMAT Disposal & Remediation (Non-Soil)	This allowance covers disposal of non-soil hazardous materials not otherwise covered in the direct costs. The allowance was based on the estimator's experience on similar projects.
Div. 26: Electrical, Fiber & Traffic Signalization	This allowance covers repairs to electrical, fiber, and traffic signals disturbed during construction. The allowance was based on the estimator's experience on similar projects and the existing conditions.
Div. 33: 54-inch conical plug valve	Direct material cost for each 54-inch conical plug valve. The allowance was based on input from Metropolitan.

Allowance	Description
Div. 33: Utility Temp Bypass & Relocation	This allowance covers temporary bypass and relocation of existing utilities for construction of the pipeline. The allowance was based on the estimator's experience on similar projects and the existing conditions.
Div. 33: Dewatering & Water Treatment	This allowance covers dewatering for pipeline exaction, including water treatment, where assumed. The allowance was based on the estimator's experience on similar projects and review of available data.
Div. 33: Dewatering & Water Treatment (Hazardous Removal)	This allowance covers the removal, treatment, and disposal of hazardous groundwater. The allowance was based on the estimator's experience on similar projects and review of available data.
Azusa Pipeline Rehabilitation	An allowance has been included to account for minor rehabilitation of the existing pipeline, as well as new piping and isolation valves to bypass the Big Dalton Pressure Reducing Station and connections to the La Verne Pipeline.
WNPS Substation	See Section 3.1 for description.

4.0 General Pricing Information

4.1 Labor Rates

Labor wage rates for the estimate are based on the July 2025 prevailing wage rate determinations for LA County, published by the California State Department of Industrial Relations rates (<https://www.dir.ca.gov>). These rates are segregated into base wages and fringes to calculate applicable payroll taxes. The rates also include insurance costs that are calculated on minimum rates with additional costs for insurance carrier markup. Overtime costs are calculated in each task's direct cost item for hours worked in excess of 8 hours per day or Saturday and Sunday. There is a straight time component and overtime component, as not all fringes are applied to overtime. The rate also includes a 2% adjustment for miscellaneous general unaccounted for overtime.

4.2 Equipment Rates

Equipment ownership and operating rates were tabulated using algorithms established in the latest edition (2022) of the *Corps of Engineers' Construction Equipment Ownership and Operating Expense Schedule for Region VII*, which covers the Southern California Region. These algorithms are based on historical records of equipment component usage and tied to specific requirements relating to the equipment model, horsepower, tire size, and so on. Other specialty equipment rates and pricing are based on vendor quotations, published data, and experience from other projects as applicable.

4.3 Material and Subcontractor Pricing

Where available, current budgetary vendor quotes for the main construction materials have been used in this estimate. For other items, a combination of sources such as published databases from RS Means or recent cost data from similar projects are used with adjustments as appropriate. State and local sales taxes are included on consumable and permanent materials incorporated into the Work.

4.4 General Conditions

Detailed General Conditions are indicated in the indirect cost section of the estimates.

4.5 Sales Tax

For the trenchless and open trench segments, local sales tax is included for all permanent and consumable materials and supplies, and equipment purchases and rentals included in the estimate. No tax-exempt status was assumed.

4.6 Escalation

No cost escalation has been included with the estimate to mid-point of construction or the start of the associated contract package. It is assumed the Program team will escalate the estimates as required.

5.0 Engineer's OPCC Summary

The table below presents a summary of the conceptual-level Engineer's OPCC in May 2025 dollars. The costs presented represent direct and indirect capital construction costs, inclusive of 35 percent contingency.

Table 5-1. Conceptual-Level Engineer's OPCC (May 2025 dollars)

Item	Construction Cost with 35% Contingency
Phase 1 Conveyance Facilities	
Backbone Pipeline	
Reach 1 (incl. SC-1, SC-2)	\$796,400,000
Reach 2 (incl. SC-3)	\$585,400,000
Reach 3	\$160,500,000
Reach 4	\$343,300,000
Reach 5 (incl. SC-4)	\$493,000,000
Reach 6	\$380,900,000
Reach 7	\$453,600,000
Reach 8a (incl. SC-5, SC-6, SC-7, SC-8)	\$418,500,000
Reach 8b (incl. SC-9)	\$58,500,000
Backbone Pump Stations	
Whittier Narrows Pump Station (WNPS)	\$197,900,000
Substation for WNPS	\$78,000,000
Santa Fe Pump Station – Set A Pumps	\$166,700,000
Azusa Pipeline Improvements & Pump Stations	\$225,400,000
Subtotal Phase 1 Conveyance Facilities	\$4,358,100,000
Phase 2 Conveyance Facilities	
Santa Fe Pump Station – Set B Pumps	\$17,100,000
DPR Pump Station	\$114,800,000
DPR Pipeline	\$395,200,000
Improvements at Weymouth Plant	\$20,900,000
Subtotal Phase 2 Conveyance Facilities	\$548,000,000
Total Phase 1 + Phase 2 Conveyance Facilities	\$4,906,100,000

Note: Costs presented represent direct and indirect capital construction costs, inclusive of 35 percent contingency, in May 2025 dollars. No soft costs are included.

Table 5-2 presents a summary of the conceptual-level annual operating expenses for the conveyance system in May 2025 dollars. The costs presented for each pump station represent annual costs for labor, O&M, and energy.

Table 5-2. Conceptual-Level Operating Expenses (May 2025 dollars)

Facility	Labor Cost	O&M Cost	Energy Cost	Total Cost
Phase 1 Conveyance Facilities				
AWPF	\$590,000	\$280,000	\$6,970,000	\$7,840,000
WNPS ¹	\$671,000	\$363,000	\$11,018,000	\$12,052,000
SFPS – Set A	\$470,000	\$240,000	\$1,550,000	\$2,260,000
Canyon PS ¹	\$441,000	\$220,000	\$2,338,000	\$2,999,000
Big Dalton PS	\$360,000	\$180,000	\$2,250,000	\$2,790,000
Total Phase 1 Conveyance Facilities Operating Costs				\$27,941,000
Phase 2 Conveyance Facilities				
AWPF	\$590,000	\$280,000	\$10,020,000	\$10,890,000
WNPS ¹	\$671,000	\$363,000	\$13,828,000	\$14,862,000
SFPS – Set A	\$470,000	\$180,000	\$490,000	\$1,140,000
SFPS – Set B ¹	\$551,000	\$275,000	\$5,068,000	\$5,894,000
DPR PS	\$470,000	\$240,000	\$4,560,000	\$5,270,000
Total Phase 2 Conveyance Facilities Operating Costs				\$38,056,000
1. Pump station operating expenses include costs for chemical booster facilities.				

6.0 Key Drivers for Cost Increase Compared to Previous Estimate

The table below presents a comparison of the prior OPCC from June 2022 to this OPCC using May 2025 dollars. The costs presented represent direct and indirect capital construction costs, inclusive of 35 percent contingency. To compare the costs in equivalent dollars, the prior OPCC was escalated to May 2025 dollars using the ENR CCI for Los Angeles.

Table 6-1. Summary of Comparison to Previous Estimate (May 2025 Dollars)

Item	Prior June 2022 OPCC (escalated to May 2025)	Current OPCC (May 2025)
Phase 1 Conveyance Facilities		
Whittier Narrows Pump Station (WNPS)	\$141,000,000	\$197,900,000
Substation for WNPS	-	\$78,000,000
Santa Fe Pump Station – Set A Pumps	\$48,600,000	\$166,700,000
Backbone Pipeline	\$2,321,600,000	\$3,690,100,000
Azusa Pipeline Improvements & Pump Stations	\$98,800,000	\$225,400,000
Subtotal Phase 1 Conveyance Facilities	\$2,610,000,000	\$4,358,100,000
Phase 2 Conveyance Facilities		
Santa Fe Pump Station – Set B Pumps	-	\$17,100,000
DPR Pump Station	\$63,800,000	\$114,800,000
DPR Pipeline	\$291,100,000	\$395,200,000
Improvements at Weymouth Plant	-	\$20,900,000
Subtotal Phase 2 Conveyance Facilities	\$354,900,000	\$548,000,000
Total Phase 1 + Phase 2 Conveyance Facilities	\$2,964,900,000	\$4,906,100,000

Notes:

1. Costs presented represent direct and indirect capital construction costs, inclusive of 35 percent contingency, in May 2025 dollars. No soft costs are included.
2. June 2022 OPCC was escalated to May 2025 dollars using ENR CCI for Los Angeles. Escalation is 18.4%.
3. Prior costs in 2022 for the backbone pipeline included upsizing 14-miles to 9-foot diameter (\$620,700,000 after escalation to May 2025 dollars). Current costs in 2025 do not include any upsizing.
4. June 2022 OPCC costs for Phase 2 Conveyance Facilities are from the June 7, 2022 Interim OPCC Update based on 60 mgd.

The construction costs have increased between the prior June 2022 OPCC (escalated to May 2025 dollars) and this OPCC. The major factors driving the largest impact on the cost increase are as follows:

Materials and Market Conditions

- **Steel pipe cost:** The cost of steel pipe has increased at a rate exceeding the ENR CCI for Los Angeles.
- **Trenchless material and installation costs:** The unit costs for trenchless installations have increased at a rate exceeding the ENR CCI for Los Angeles.

Scope Refinements

- **Additional trenchless required:** As a result of design advancements and revisions to the alignment, this OPCC is based on additional trenchless construction. Please refer to Section 6.2 of the CDR for additional details on each trenchless drive.
- **Additional utilities, soils handling & deeper alignments and shafts in Reach 1 and 2:**
 - Detailed utility investigations have been completed as part of the preliminary design of Reach 1 and 2, which resulted in a significant increase in the number of existing utilities being identified. This OPCC reflects changes to construction methodology as a result, which includes deeper alignments and shafts, increased soils handling, and utility relocations.
 - Prior estimates assumed select backfill material (sand/gravel) around the pipe zone and native material for the remaining backfill for open cut construction. This OPCC is based on CLSM backfill in Reach 1 and 2 to more adequately account for the potential presence of hazardous materials, volume of truck traffic, and speed of installation.
- **Pipeline lining and coating change:** Prior estimates were based on cement mortar lined and coated steel pipe. This OPCC is based on a polyurethane lining system and a Novolac epoxy or polyurethane coating system. The lining system was selected based on an evaluation of the AWPf's anticipated product water quality. The coating system was selected to address corrosive ground conditions and separation requirements as a result of the additional investigations completed. Please refer to Section 6.1 of the CDR for details.
- **Deeper trenchless crossings and shafts:** Prior estimates applied a uniform assumption for the depth of cover as a multiplier of the excavated diameter. The design has progressed since then allowing for specific evaluation of each trenchless drive and consideration of existing features. As a result, this OPCC is based on an increased depth of cover for many of the trenchless installations to more appropriately provide separation from existing utilities or other sensitive infrastructure to prevent settlement or damage. As a result, the shafts have deepened, there are more impacts from groundwater, and more robust shaft construction is required. Please refer to Section 6.2 of the CDR for additional details on each trenchless drive.
- **Hazardous materials disposal in Reach 1:** As a result of the additional field investigations completed in Reach 1 to support the preliminary design, a greater amount of hazardous materials disposal has been assumed for this OPCC.
- **Additional allowances:**
 - An allowance has been included for requirements during construction as a result of CEQA.
 - An allowance has been included for public outreach requirements by the Contractor.
 - An allowance has been included for laydown rental.
 - A 5% allowance for mobilization has been included per the new program OPCC guidelines, which is higher than assumed in prior estimates.

- Depth of cover: Prior estimates were based on 8-feet of cover on average for open cut construction in streets and approximately 5-feet of cover in easements. This OPCC is based on 10-feet of cover in city streets and 7-feet of cover in easements due to the increased quantity of existing utilities that have been identified and additional conversations with the property owners for the easements.
- Shorter pipe spools: Prior estimates assumed 40-foot spools in city streets. As a result of the increased frequency of utilities that have been identified during the additional investigations completed and the challenges of handling longer pipe spools in a congested area, this OPCC is more appropriately based on 20-foot pipe spools in city streets. This results in an increased amount of work (welding, coating, lining, testing) due to the higher quantity of joints and subsequently in higher cost.
- Concrete encasement in SCE easements: Based on feedback from SCE during conceptual design development for the backbone pipeline, this OPCC assumes concrete encasement would be required in certain locations within SCE right-of-way near SCE transmission towers to protect the pipeline and allow for higher loading from SCE's maintenance vehicles and equipment.
- River Tunnel excavated diameter increase: Prior estimates assumed an excavated tunnel diameter of 11.58 feet for the SG River tunnel. During the more detailed evaluation of this tunnel, it was determined that intermediate shaft sites are not readily available. Due to the lack of intermediate shaft sites, this OPCC has increased the excavated tunnel diameter assumed to 13 feet to account for the utilities that are required as a result.
- Pavement restoration: Prior estimates assumed paving restoration of the trench excavation plus a grind and overlay extending 2 feet on either side of the trench, consistent with many cities' standard details. However, for large diameter pipelines, it is common for the cities to require a grind and overlay from curb to curb or curb to median, as applicable. This OPCC is based on a grind and overlay from curb to curb or curb to central median, as applicable.
- Azusa Pipeline improvements:
 - Prior estimates assumed ~7,000 linear feet of new 30-inch pipe required to connect the Azusa pipeline to Metropolitan facilities. As a result of the alignment evaluation completed, this OPCC is based on the latest alignment, which requires ~16,500 linear feet.
 - Prior estimates did not include improvements to the existing Azusa Pipeline, as the condition was not known to estimate improvements. To provide a more conservative budgeting purposes, this OPCC includes a \$25M allowance for improvements to the Azusa Pipeline.
- Pump station design refinements:
 - Demolition of existing structures now assumed at select pump station sites.
 - This OPCC assumes the pumps and mechanical equipment are housed in a building for added security in highly urbanized areas, to match the aesthetics of the surrounding communities, and to reduce maintenance of the facility.

- The pump type assumed changed from vertical turbine to horizontal split case as they provide a lower lifecycle cost, are more familiar to Metropolitan staff, and improve operation and maintenance. See Section 6.3.1 of the CDR for additional details on the pump evaluation completed.
- The clearwell size increased from 7.5 million gallons to 16 million gallons at the WNPS and SFPS to improve operation and reduce maintenance by simplifying pumping control strategies, improving protection of Metropolitan infrastructure during surge events, providing operational storage, providing a buffer to meet regulatory requirements, and providing reserve storage for downtime due to pump trip issues. Clearwells added to Phase 1 DPR Pump Stations for similar reasons.
- Compressors were previously assumed to be housed in the electrical building. The CDR assumes the compressors have their own building.
- Addition of chemical booster and feed buildings and chemical injection vaults at WNPS and Canyon PS.
- Addition of SCE substation at WNPS as a result of additional coordination with SCE.
- Addition of bridge cranes to facilitate maintenance.

Contractor Markups

- **Markups on trenchless work for hybrid reaches:** At the time the prior estimate was prepared, the contract packaging and methodology had not been determined. One option being considered was to bid the trenchless construction separately. Therefore, the prior estimate did not assume secondary markups on the trenchless work by a General Contractor. It is currently anticipated that all work within each reach, whether it is open cut or trenchless, would be bid together. Therefore, this OPCC more appropriately assumes a General Contractor would have overhead and profit markups for the trenchless work for Reaches 2, 3, 5, 6, 7, 8A, and 8B. Reaches 1 and 4 are mostly tunnels and are assumed to have a tunneling contractor as the prime.
- **Indirect construction cost markups:** As is typical with high level planning estimates, the prior estimate used typical markup percentages for the Contractor's indirect costs, including overhead, profit, bonds, insurance, and general requirements. Together, these indirect costs totaled ~34.68% of the direct costs. Since then, two things lead to an increase in the indirect construction costs applied for this OPCC: (1) the engineering has progressed resulting in a greater level of design definition and understanding of the complexities of the general requirements and general conditions for the work; and (2) the *PWSC Cost Estimating Standards* were published. The *PWSC Cost Estimating Standards* provides markup percentages for indirect costs, which, along with the increased understanding of the complexities of the general requirements and general conditions, result in an increase in the indirect construction cost markups. In total, this OPCC applies an average of ~45.2% in indirect construction cost markups on the direct costs.

Appendix E Program Cost Comparison of PWSC & GWRS



THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA



Date: February 6, 2026

To: Mr. Craig Parker, Assistant General Manager, Water Services
Anaheim Public Utilities

From: Gloria Lai-Blüml, Interim Program Manager, Pure Water Southern California
Metropolitan Water District of Southern California

Subject: Program Cost Comparison of Pure Water Southern California and OCWD Groundwater Replenishment System

Background

Pure Water Southern California (Pure Water, or PWSC) is a proposed partnership between Metropolitan and the Los Angeles County Sanitation Districts (Sanitation Districts) to beneficially reuse cleaned wastewater that is currently being discharged to the Pacific Ocean from the Sanitation Districts' A.K. Warren Water Resource Facility (Warren Facility) in the City of Carson. At full buildout, Pure Water would purify up to 150 million gallons per day (MGD), making it one of the largest programs of its kind in the world. Implementation of Pure Water would provide regional benefits to all Metropolitan member agencies by: (1) reducing reliance on imported water; (2) diversifying locally available supplies; (3) improving resilience to climate change and other stressors; and (4) enhancing operational reliability and flexibility.

Pure Water would include an Advanced Water Purification Facility (AWPF) and conveyance system to deliver purified water for indirect and direct potable reuse (IPR and DPR) applications. The AWPF would consist of the Advanced Water Treatment (AWT) facility owned and operated by Metropolitan, as well as the pretreatment and Membrane Bio-Reactors Facility (MBR) owned and operated by the Sanitation Districts. AWT processes for indirect potable reuse are anticipated to include reverse osmosis (RO) and ultraviolet/advanced oxidation process (UV/AOP) disinfection. Additional processes for DPR may include a combination of chlorine dioxide, UV, ozone, and granular/biological activated carbon (GAC/BAC) processes.

For environmental and conceptual planning purposes, Pure Water is envisioned to be implemented in two phases - Phase 1 (115 MGD) and Phase 2 (150 MGD) with ultimate buildout to 150 MGD. However, Metropolitan is also considering additional program staging options as a subset of Phase 1, which includes 45, 75, and 115 MGD. The capital and operation and maintenance (O&M) costs for both phases, as well as the staging options for Phase 1, were presented to Metropolitan's Board on September 23, 2025, and are summarized in the 2025 Pure Water Southern California Cost Estimate Memorandum prepared by Metropolitan's Pure Water program management consultant (PMC). This Memorandum is currently being finalized and is anticipated to be available shortly.

2025 Program Cost Update

The 2025 program cost update was benchmarked against historical data, vendor quotes, and comparable large-scale water reuse projects. Sensitivity analyses were performed to account for escalation, market volatility, and scope adjustments. The cost estimate for Phase 1 reflects an increase from the 2023

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estimate from \$4.9 billion to \$8.3 billion, and from \$5.8 billion to \$9.8 billion for the full program build-out (Metropolitan costs only). Key drivers for this cost increase are highlighted below.

- Conveyance System: Costs increased from \$1.8 billion to \$3.7 billion in Phase 1 due primarily to the higher cost of steel and trenchless operations, as well as design refinements, and adjustments to contractor markups to be consistent across the program.
- Advanced Water Treatment: Costs increased from \$0.9 billion to \$1.1 billion due primarily to scope refinements, materials costs, escalation and market conditions.
- Indirect Costs, Allowances and Contingencies: Costs increased from \$1.8 billion to \$3.4 billion due to an increase in the assets' capital costs and allowances for contingency, program management, and engineering, which are all calculated as percentages of the higher construction costs. In addition, allowances have been included for tariffs and Build America/Buy America Act (BABAA) compliance as a percentage of the total program costs.

Summary of Comments from City of Anaheim

In February 2024 the Assistant General Manager of the City of Anaheim emailed the following comments for Metropolitan's consideration:

1. *Why are the Pure Water Project costs so much higher than OCWD GWRS? Recommendation to reach out to OCWD staff to fully understand how they completed and operate their GWRS Project at such lower costs.*
2. *Project currently has plans to build a new lab and employ 40 to 50 new employees. This seems excessive.*
3. *Project will be funding a new Workforce Training Center. While I support the Workforce Training Center, I believe you could find outside funding sources for an item such as this.*
4. *Regarding implementing Direct Potable Reuse into to the project should be investigated. My understanding is that DPR is only providing about 25 of the 115 MGD of the Project. However, DPR related costs add substantial costs to the project. Indirect Potable Reuse, which will provide water to recharge basins, is a much more economical approach and would probably reduce the length of the pipelines, which is a substantial part of the costs.*
5. *You are pursuing grants, and contributions from agencies such as LA County Sanitations Districts and Southern Nevada Water Authority. I would highly encourage pursuing these vigorously.*

Detailed Response to Comment #1: Comparison to GWRS Program Costs

Metropolitan appreciates these comments and the insights that may help us lower the overall program costs.

Orange County Water District's (OCWD) Groundwater Replenishment System (GWRS) has a capacity of 130 mgd and takes secondary treated wastewater from the Orange County Sanitation District (OC San) and purifies it using a three-step advanced treatment process consisting of microfiltration (MF), RO, and UV/AOP disinfection. GWRS water is recharged into the local groundwater basin where it supports increased groundwater basin pumping by local cities and retail water districts. Thus, GWRS is an IPR program only, with no DPR facilities. Approximately 30 MGD of GWRS water can be pumped into injection wells to create a seawater intrusion barrier. Another 100 MGD is conveyed approximately 13 miles to OCWD's percolation basins in Anaheim where the GWRS water naturally filters through sand and gravel to the deep aquifers of the groundwater basin to increase the local drinking water supply. OCWD can also inject up to 10 MGD into wells located in the City of Santa Ana.

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GWRS came online in 2008, producing 70 MGD for \$481 million. It was expanded in 2015, producing an additional 30 MGD for \$142 million. The final expansion, completed in 2023, increased production capacity by another 30 MGD for \$284 million, bringing the total plant capacity to 130 MGD. Total capital costs are therefore approximately \$900 million over a span of 15 years. This includes construction, engineering/legal/admin (ELA), and program management for all program facilities including the treatment, conveyance and recharge infrastructure summarized above.

To adequately compare Pure Water costs to those of GWRS, the PMC used the capital and O&M estimates for the Pure Water 75 MGD and GWRS 70 MGD capacities in 2025 dollars, without adjustments for grants or contributions. As GWRS does not have a DPR component and the conveyance system is very different in the overall configuration, the cost comparison between the two programs was focused on the IPR process components (AWT only, without the Sanitation Districts' MBR or pretreatment facilities) excluding the conveyance system. The Pure Water estimate for 75 MGD would be the closest capacity option for comparison purposes.

The cost comparison is detailed in **Attachment A** and summarized below:

1. Capital costs for the two programs are not directly comparable because of the difference in time and capacity at which GWRS was implemented. However, the PMC performed a high-level comparison of the GWRS 70 MGD facility (in 2025 dollars) and the Pure Water 75 MGD capacity scenario (for AWT facilities only) and found that the cost difference falls within the expected range for a Class 5 estimate (i.e. expected accuracy range between -50% and +100%). Pure Water's projected capital cost is approximately 34% higher than that of GWRS on a \$/MGD basis. This is primarily due to early design maturity necessitating higher construction contingency costs, and the inclusion of allowances for a program management consultant (given the program size and complexity), BABAA requirements, and tariffs.
2. O&M costs for the GWRS 70 MGD facility (in 2025 dollars) and the Pure Water 75 MGD capacity scenario (for AWT facilities only) are within a reasonable cost range. Pure Water's projected O&M cost is approximately 78% higher than that of GWRS on an annual \$/MGD basis. This is primarily due to the early design maturity necessitating higher O&M contingency costs, as well as higher projected plant maintenance costs due to the additional facilities needed for Pure Water in comparison to GWRS (such as process buildings, ancillary facilities, public outreach facilities, and a workforce training center).

Detailed Response to Comment #2: Laboratory Staffing

Metropolitan estimates approximately 55 laboratory staff would be required at full buildout of 150 MGD, which includes 40 laboratory staff for IPR- and 15 laboratory staff for DPR-focused work. The staffing level is based on Metropolitan's experience in operating large water treatment facilities, as well as scaling comparable large-scale operating water reuse projects like GWRS. GWRS's current operating staff of 66 FTE (for 130 MGD capacity) includes 33 IPR-focused laboratory staff. As a result, Pure Water's laboratory staffing level is comparable to GWRS, given Pure Water's higher capacity (150 MGD vs. 130 MGD) and additional DPR analytical requirements for regulatory compliance.

Detailed Response to Comment #3: Outside Funding for Workforce Training Center

The Workforce Training Center is essential in developing local workforce skills and creating employment opportunities locally within our communities. Costs are anticipated to be shared between the Sanitation Districts and Metropolitan. Metropolitan is also monitoring state and federal grant opportunities and will pursue available grants to supplement funding for this facility.

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Detailed Response to Comment #4: DPR Implementation

Metropolitan will consider various staging options, including both IPR and DPR. IPR is essential to replenish diminishing groundwater supplies in several basins and requires the construction of an approximately 39-mile large-diameter backbone conveyance system to reach the areas with the greatest replenishment demand in the Main San Gabriel Basin. An additional approximately 10 miles of smaller diameter pipeline would be needed to convey a portion of the water eastward to Metropolitan's Weymouth plant in the City of La Verne for DPR by augmenting Metropolitan's regional raw water supplies. In Phase 1 (115 MGD), approximately 25 MGD would be temporarily conveyed through the existing Azusa Pipeline owned by the San Gabriel Valley Municipal Water District. In Phase 2 (150 MGD), a new DPR pipeline would be constructed to convey approximately 60 MGD. However, Metropolitan may consider reducing the size of the DPR pipeline to convey only 35 MGD if the Azusa Pipeline is able to be used on a more permanent basis. In addition, Metropolitan is evaluating opportunities to incorporate DPR via treated water augmentation with direct connections along the backbone pipeline to one or more existing feeders, which would eliminate the need for the additional 10 miles of DPR pipeline to the Weymouth plant, resulting in potential cost savings.

Metropolitan is currently assessing DPR implementation for its conceptual feasibility, infrastructure requirements, planning-level costs, and implementation strategies via raw water augmentation and/or treated water augmentation. Current known DPR demands and considerations for potential constraints and benefits will be included in the study. This assessment will be refined and investigated through targeted research studies, pilot/demonstration testing, additional engineering, costing, and design inputs. The preliminary findings will be presented to Metropolitan's Board this spring.

Detailed Response to Comment #5: Grants and Partnership Contributions

Pure Water has secured both state (\$80 million) and federal (\$130.5 million) grant funding. Metropolitan is also seeking other grant opportunities and partnership contributions. Most notably, the Sanitation Districts is committed to partner with Metropolitan to build and operate the AWP facilities for Pure Water. In addition, the Southern Nevada Water Authority is actively engaged with Metropolitan in a potential partnership, and Metropolitan is also working with other State Water Project and Colorado River partners for their potential contributions to Pure Water.

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Attachment A

Cost Comparison of Pure Water Southern California and OCWD Groundwater Replenishment System

Capital Cost Comparison

Pure Water is envisioned to be implemented in two phases - Phase 1 at 115 MGD and Phase 2 (ultimate buildout) at 150 MGD. Phase 1 will build 90 MGD IPR and 25 MGD DPR capacities, and Phase 2 adds another 35 MGD DPR capacity. Additional staging options of 45, 75, and 115 MGD, as a subset of Phase 1, are also considered. The capital and O&M costs for both phases, as well as the staging options, were presented to Metropolitan's Board on September 23, 2025, and are summarized in the 2025 Pure Water Southern California Cost Estimate Memorandum prepared by Metropolitan's Pure Water program management consultant (PMC).

As GWRS does not have a DPR component and the conveyance system is very different in the overall configuration, the cost comparison between the two programs is focused on the IPR process components (AWT only, without the Sanitation Districts' pretreatment and MBR facilities) excluding the conveyance system. Conveyance system capital costs for the two programs are not comparable because of the significant difference in pipe sizes, materials, construction methods, subsurface conditions, and length (13 miles for GWRS versus approximately 50 miles for Pure Water), as well as the need for appurtenant facilities including five pump stations with adequate clearwell capacity, nine service connections, isolation valves, electrical substation, etc.

All Pure Water estimates are at Class 5 level (AACE Cost Estimating Classification System) based on the current maturity level of project definition deliverables, with a corresponding expected accuracy range between -50% and +100%.

Pure Water's estimate for 75 MGD would be the closest capacity option for comparison. GWRS (70 MGD) started design in 1995, started construction in 1999 and was commissioned in 2008. As these events occurred many years ago, a large escalation factor of 94 percent needs to be applied to adjust the GWRS cost from the 2008 to the 2025 dollars using the City Cost Index for Los Angeles (CCI-LA) for cost comparison. CCI-LA and CCI-Orange County are assumed to be similar for this period. The long escalation period to bring the GWRS costs to 2025 dollars adds complexity to the comparison of similar equipment, supplies, labor pools, site preparations, compliance requirements, and building construction.

Table 1 is a high-level capital cost comparison between the GWRS 70 MGD IPR facility and the Pure Water 75 MGD IPR-only AWT facility. The resulting cost difference falls within the expected accuracy range for a Class 5 estimate, with the expected accuracy range between -50% and +100%. The analysis indicates that the 75 MGD Pure Water IPR facility is approximately 43% higher than the 70 MGD GWRS facility in cost (2025 dollars), or 34% higher on a \$/MGD basis to adjust for the slight difference in capacities. This is primarily due to early design maturity necessitating higher construction contingency costs, and the inclusion of allowances for a program management consultant (given the program size and complexity), BABAA requirements, and tariffs. These are based on conservative assumptions given the early design maturity, and actual capital costs may be less. Table 1 provides a detailed breakdown of this comparison.

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Table 1 – PWSC (75 MGD) and GWRS (70 MGD) AWT Capital Cost Comparison

Description	GWRS 70 MGD Actuals in 2008\$ (2)	GWRS 70 MGD Actuals in 2025\$ (1), (2)	PWSC 75 MGD in 2025\$ (3)	Variance (\$M)	Variance (%)
Pre-selection Services (MF and UV Engineering)	\$ 861,526	\$ 1,671,360	\$ -		
Program Management(4)	\$ 807,221	\$ 1,566,009	\$ 41,310,119		
Construction Cost	\$ 409,858,792	\$ 795,126,056	\$ 826,202,370		
Engineering, Legal and Administrative	\$ 69,372,461	\$ 134,582,574	\$ 206,550,593		
Tariff Allowance (3.5%)	\$ -	\$ -	\$ 7,229,271		
BABAA Allowance (1%)	\$ -	\$ -	\$ 8,262,024		
Contingency (30%)	\$ -	\$ -	\$ 247,860,711		
Total Project Cost	\$ 480,900,000	\$ 932,946,000	\$ 1,337,415,087	\$ 404,469,087	43%
Cost by MGD		\$ 13,327,800	\$ 17,832,201	\$ 4,504,401	34%
(1) Inflation Factor based on ENR CCI-LA (1.94)					
(2) GWRS includes all program facilities including the treatment, conveyance and recharge infrastructure					
(3) PWSC includes AWT only, excluding the Sanitation Districts' MBR and the conveyance system.					
(4) GWRS includes Construction Management Trailers					

O&M Cost Comparison

Similar to the capital cost comparison, the O&M costs for PWSC AWT at 75 MGD and GWRS at 70 MGD were used for the O&M cost comparison. As the conveyance systems of the two programs are quite different in complexity, size, length, facilities, staffing needs, labor costs for qualified delivery staff, and end-users' needs, a direct conveyance system O&M cost comparison was not completed between the two programs.

Assumptions for the PWSC AWT O&M costs include:

- Electricity rate: \$0.15/kWh
- Labor rate: \$150/hour; 2,080 hours annually
- Maintenance: 3% of equipment cost
- Sales tax on replacement components: 9.5%
- Contingency: 15%
- Major equipment replacement: 1% of construction cost

O&M costs for the GWRS 70 MGD facility (in 2025 dollars) and the Pure Water 75 MGD capacity scenario (for AWT facilities only) are within a reasonable cost range. Pure Water's projected O&M cost is approximately 91% higher than the GWRS O&M costs (in 2025 dollars), or 78% higher on an annual \$/MGD basis to adjust for the slight difference in capacities. This is primarily due to the early design maturity necessitating higher O&M contingency costs, as well as higher projected plant maintenance costs due to the additional facilities needed for Pure Water in comparison to GWRS (such as process buildings, ancillary facilities, public outreach facilities, and a workforce training center). These are based on conservative assumptions given the early design maturity, and actual maintenance costs may be less. Table 2 provides a detailed breakdown of this comparison.

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Table 2 – PWSC (75 MGD) and GWRS (70 MGD) AWT O&M Cost Comparison

Description	GWRS 70 MGD <i>Actuals</i> in 2015/2016\$ (2)	GWRS 70 MGD <i>Actuals</i> in 2025\$ (1), (2)	PWSC 75 MGD in 2025\$ (3)	Variance (\$M)	Variance (%)
Electricity	\$ 8,784,000	\$ 15,196,320	\$ 12,970,000		
Chemicals	\$ 5,559,252	\$ 9,617,506	\$ 9,860,000		
Labor	\$ 9,678,633	\$ 16,744,035	\$ 18,310,000		
Plant Maintenance	\$ 3,586,290	\$ 6,204,282	\$ 38,260,000		
Contingency (15%)	\$ -	\$ -	\$ 11,910,000		
Total Project Cost	\$ 27,608,175	\$ 47,762,143	\$ 91,310,000	\$ 43,547,857	91%
Cost by MGD		\$ 682,316	\$ 1,217,467	\$ 535,150	78%
(1) Inflation Factor based on ENR CCI-LA (1.94)					
(2) GWRS excluding R&R Funding Contribution and Debt Service					
(3) PWSC includes AWT only, excluding the Sanitation Districts' MBR and the conveyance system.					