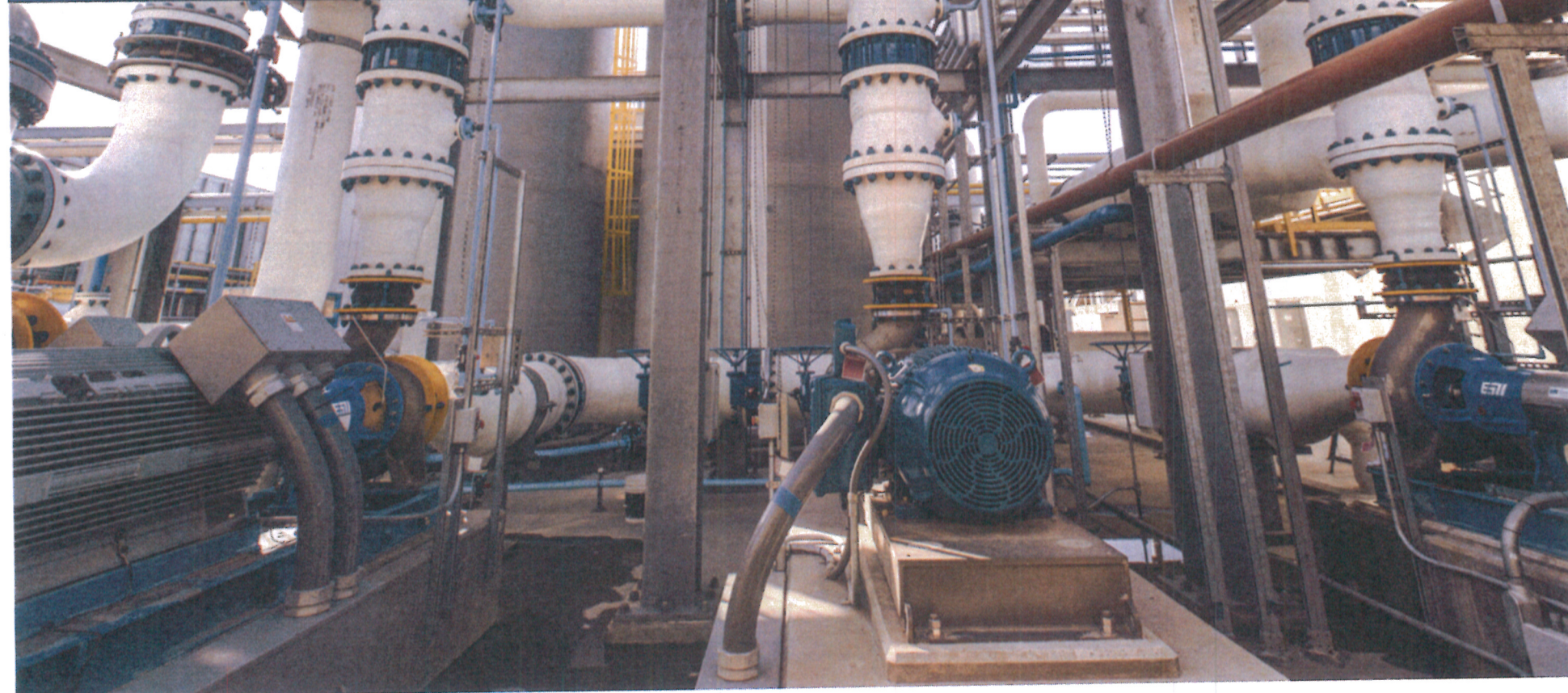


Neill



**CDP Permit Renew Meeting**  
**September 13, 2018**



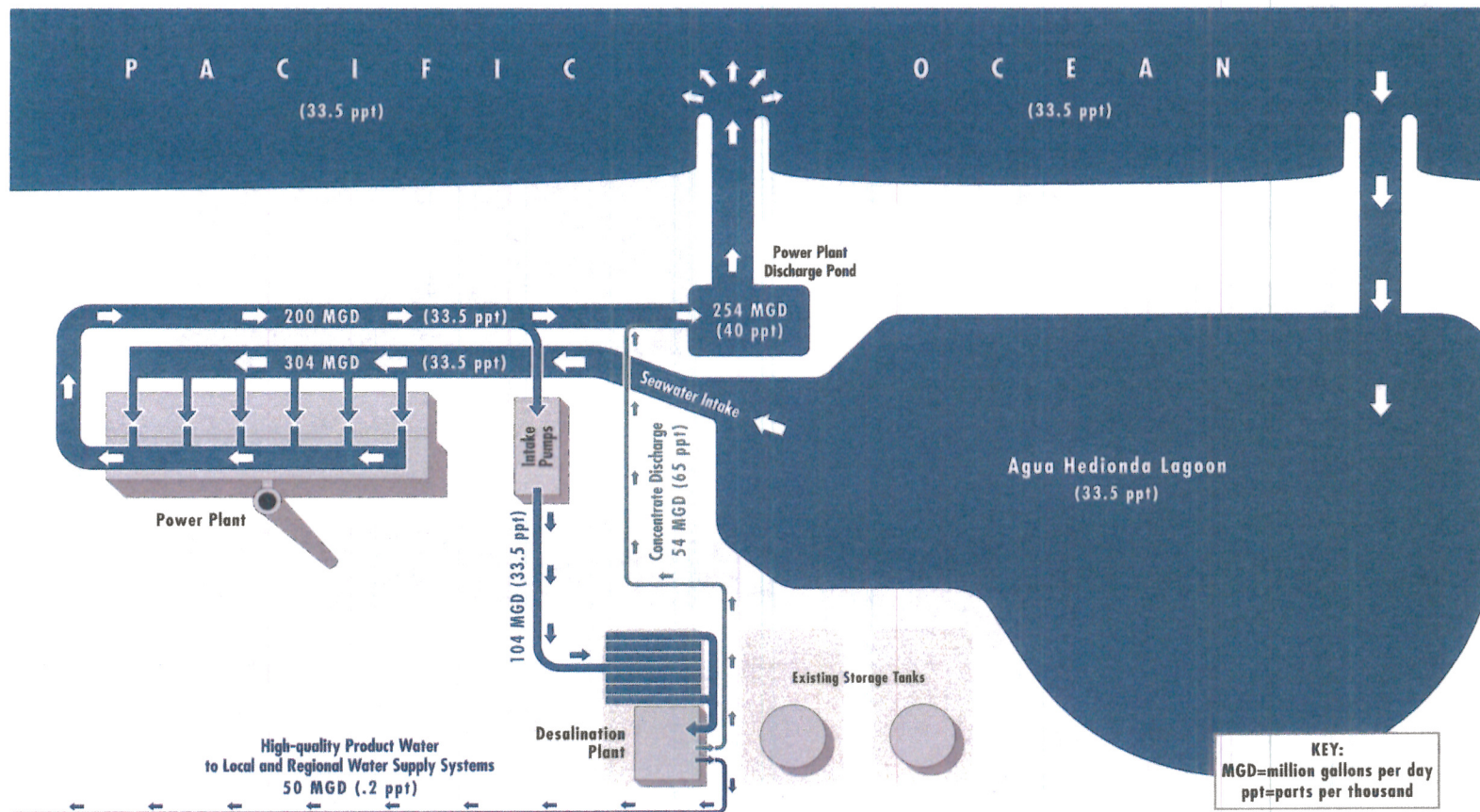


# Alternative 21 Mitigation Calculation

Type of Impact Measured	Impacted Area (Acres)	Impacted Habitat	Impacted Area By Habitat Type (Acres)	Mitigation Ratio	Required Mitigation (Acres)	Mitigation Area Habitat Type
Entrainment	131.70	Estuarine	59.40	1:1	59.40	Estuarine
		Open Water	72.30	10:1	7.23	Estuarine
Brine Mixing Zone	18.51	Soft Bottom	18.20	10:1	1.82	Estuarine
		Rock Jetties	0.31	1:1	0.31	Estuarine
Permanent Construction	0.20	Estuarine	0.10	1:1	0.20	Estuarine
Total	150.41		150.41		68.96	Estuarine

Entrainment mitigation per SAP final report dated August 24, 2018, acreage presented is after consideration of one percent mitigation credit.

# Phase 1 – Continuation of Temporary Stand-Alone Operation











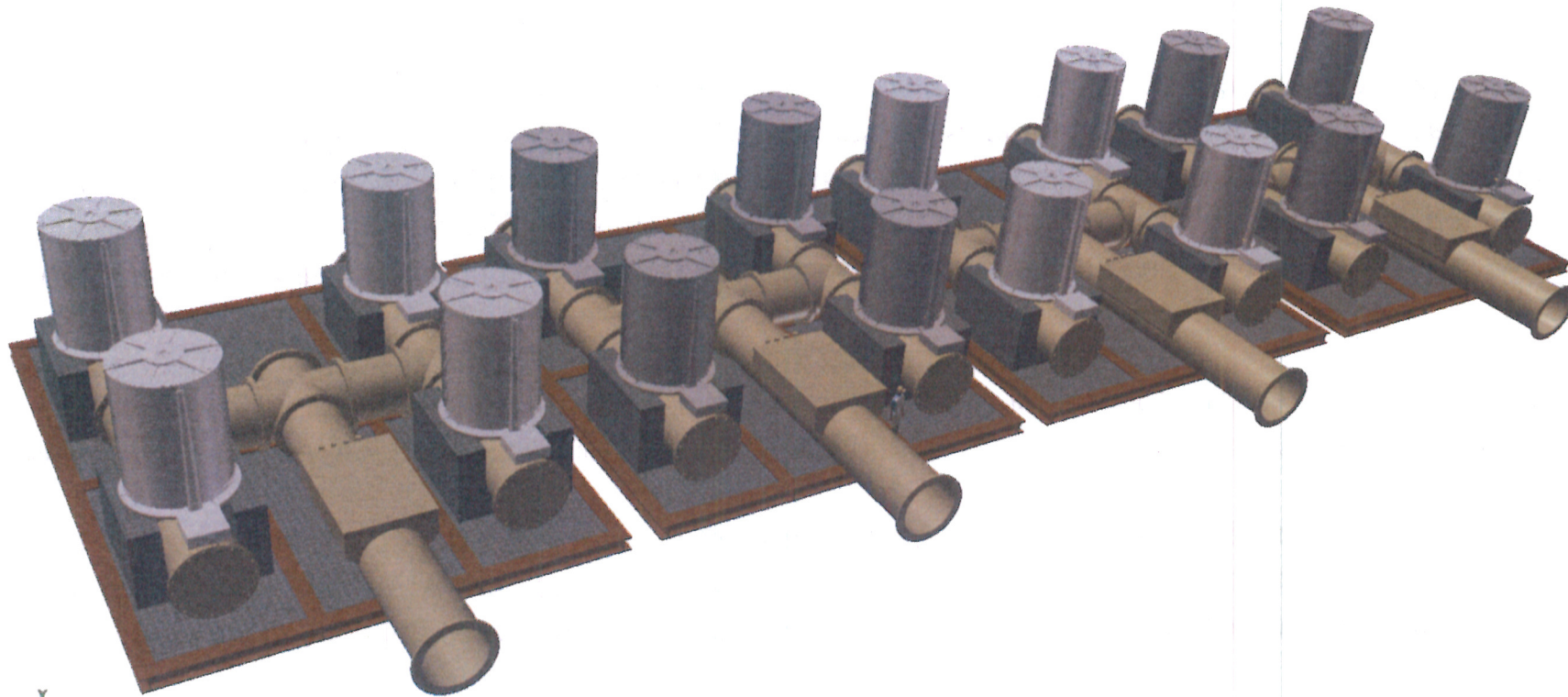






# Self Cleaning Intake Screen Layout

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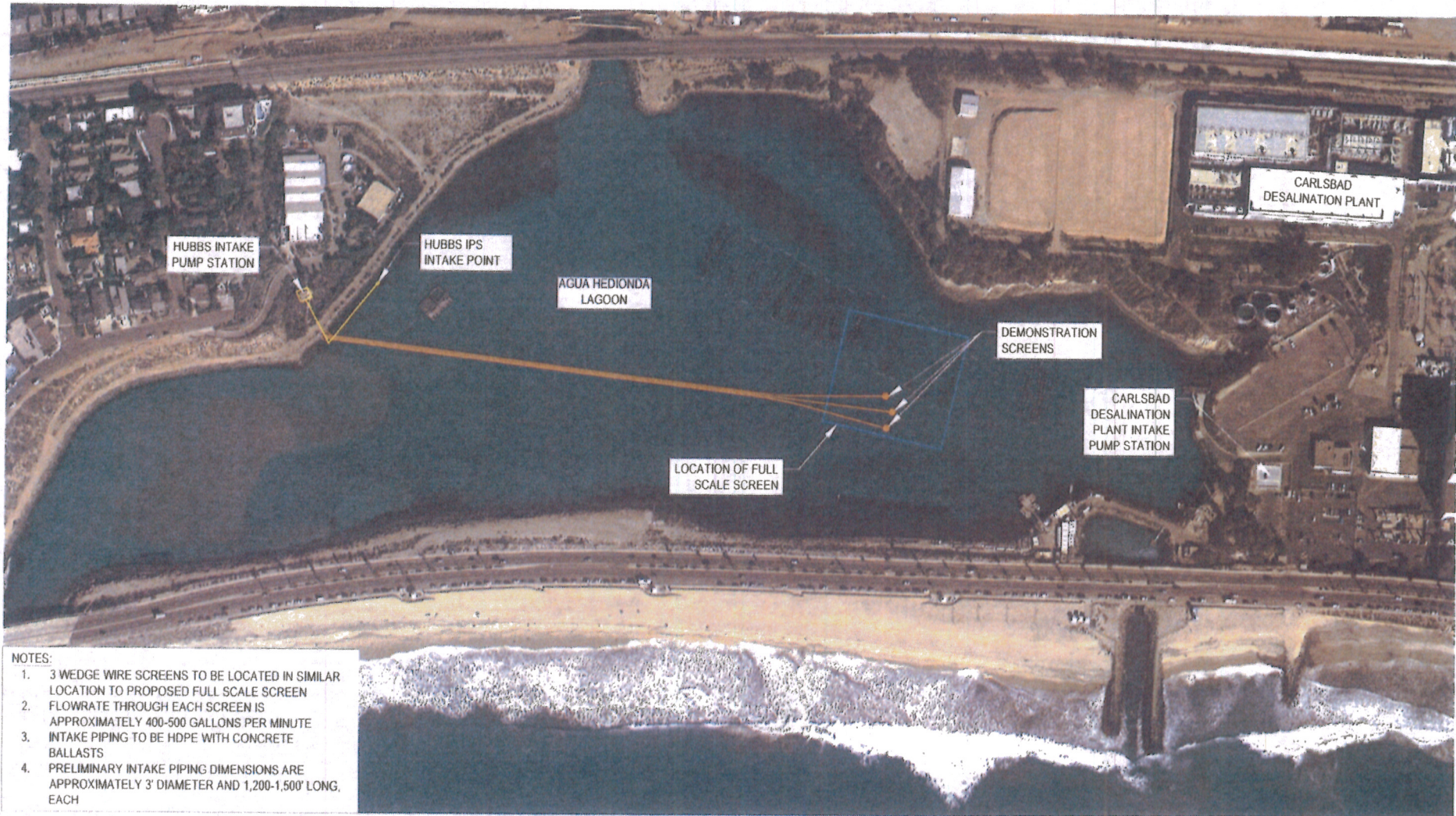
# Wedgewire Screen Maintenance

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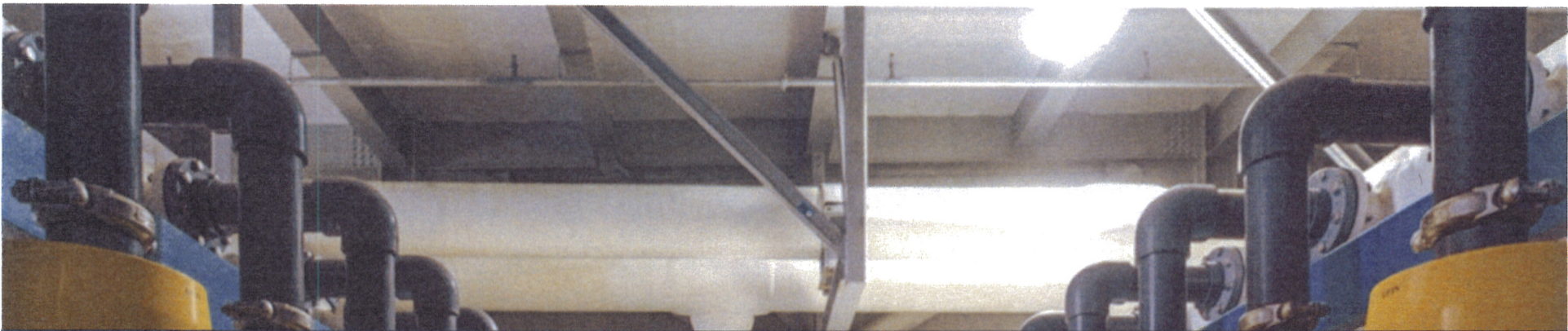
- Intake maintenance will require periodic cleaning of the wedgewire screens and cleaning of the four intake laterals that convey the screened water to the intake pump stations:
- **Screen Cleaning.** Floating debris would be removed from the surface of the screens would be removed using an air-burst system. Active screens would be cleaned daily using mechanical brushes. Divers would be deployed as needed to manually clean the screens using brushes or high pressure jets.
- **Sediment Removal.** Localized sediment buildup between the screens would be removed by divers using a 6" suction dredge. The sediment and water removed by the suction dredge would be deposited on the beach fronting the lagoon immediately west of the intake screens.
- **Intake Lateral Cleaning.** Accumulation of biofouling on the internal surfaces of the intake laterals would be removed through periodic pigging of the laterals. Pigging would be conducted when the plant is offline. Biofouling removed by pigging and additional flushing water would be directed to the discharge pond for settling. A silt curtain would be placed across the outlet of the pond during pigging operation. When the pigging operation is complete, the silt curtain would be removed and the plant would return to service.
- **Permit Compliance.** The maintenance procedures described above, conducted in accordance with best management practices, shall not constitute a violation of Section V.A.3.b. of the Order which states that the discharge shall not aesthetically undesirable discoloration of the ocean surface.



# Demonstration Project







# | Project Schedule and Cost





# Phased Implementation Schedule

		...	2018	2019	2020	2021	2022	2023	2024	2025	...
<b>New Intake/Discharge Modifications - Alternative 21: 16 Wedgewire Screens in Lagoon, Fish-friendly Pumps</b>											
<b>INTERIM</b>											
<b>Phase 1 - Temporary Standalone</b>											
CAWIS, WPA Amendment			July 2018 to Dec 2018								
Operating Phase 1 of Interim				Jan 2019 to Dec 2019							
<b>Phase 2 - New Pump Station</b>											
Permitting			Ending Date: June 30 19								
Design & Procurement			Jan 2018 to June 2019								
Financing				*							
CAWIS, WPA Amendment				Jan 2018 to Dec 2018							
Construction Phase 2					July 2019 to Dec 2019						
Operating Phase 2 of Interim						Jan 2020 to Dec 2022					
<b>Demonstration Project</b>											
Permitting			Ending Date: June 30 19								
Design & Procurement			Jan 2019 to Jun 2019								
Construction Demo Project					July 2019 to Dec 2019						
Operating Demo Project						Jan 2020 to Dec 2021					
Feasibility Determination							*				
<b>PERMANENT STANDALONE</b>											
<b>Phase 3 - Lagoon Intake Structure</b>											
Permitting								Ending Date: Dec 2022			
Design & Procurement					Jan 21 to Dec 22						
Financing							*				
CAWIS, WPA Amendment								Jan 2022 to Dec 2023			
Construction								Jan 2023 to Dec 2023			
Operating Standalone									Jan 2024 to Dec 2025		

# Capital Cost - Low

## Intake Construction Cost Analysis (\$)

Preliminary Construction Cost Estimate August 27, 2018  
Low End Version

	Interim (1st Financing)			Permanent Standalone (2nd Financing)			Total					
Alternative	Phase I: Temporary Standalone			Phase II: Pump Station Improvements and Demo			Phase III: Final Improvements			Phase III: Final Improvements		
Improvement Phase	Closure	OPA	Total	Closure	OPA	Total	Closure	OPA	Total	Closure	OPA	Total
Design & Construction Period	N/A	N/A	N/A	12-months	12-months	12-months	24-months	24-months	24-months	48 months	48 months	48 months
Operation Date	Jan-19	Jan-19	Jan-19	Jan-20	Jan-20	Jan-20	Jan-23	Jan-23	Jan-23	Jan-23	Jan-23	Jan-23
PW Internal Permitting	\$ -	\$ -	-	817,552	3,162,070	3,979,622	-	3,675,000	3,675,000	817,552	6,837,070	7,654,622
Third Party Permitting	\$ -	\$ -	-	607,096	3,910,207	4,517,303	20,000	789,500	809,500	627,096	4,699,707	5,326,803
30% Design HDR/GHD	\$ -	\$ -	-	-	-	-	-	-	-	-	-	-
Third Party Review	\$ -	\$ -	-	-	112,500	112,500	-	-	-	-	112,500	112,500
Demonstration Project	\$ -	\$ -	-	-	2,000,000	2,000,000	-	-	-	-	2,000,000	2,000,000
Intake/Outfall Construction	\$ -	\$ -	-	11,170,000	-	11,170,000	6,430,000	19,123,644	25,553,644	17,600,000	19,123,644	36,723,644
Construction Management @ 5% of construction	\$ -	\$ -	-	558,500	-	558,500	321,500	956,182	1,277,682	880,000	956,182	1,836,182
Construction Insurance	\$ -	\$ -	-	593,698	106,302	700,000	125,814	374,186	500,000	719,512	480,488	1,200,000
Construction Rent	\$ -	\$ -	-	50,000	50,000	100,000	100,000	100,000	200,000	150,000	150,000	300,000
Post Construction Entrainment and Survival Study	\$ -	\$ -	-	-	-	-	-	1,860,000	1,860,000	-	1,860,000	1,860,000
<b>Subtotal</b>	<b>\$ -</b>	<b>\$ -</b>	<b>-</b>	<b>\$ 13,796,846</b>	<b>\$ 9,341,079</b>	<b>23,137,925</b>	<b>\$ 6,997,314</b>	<b>\$ 26,878,512</b>	<b>33,875,826</b>	<b>\$ 20,794,160</b>	<b>\$ 36,219,592</b>	<b>57,013,751</b>
PW Internal Financing	-	-	-	137,054	92,786	229,840	142,290	532,710	675,000	279,344	625,496	904,840
Transaction Costs, legal	-	-	-	315,711	212,306	528,016	167,609	628,248	795,857	483,320	840,554	1,323,874
Capitalize Interest	-	-	-	647,207	435,227	1,082,434	446,245	1,625,812	2,072,057	1,093,452	2,061,039	3,154,491
Additional 6 Mo Debt Service Reserve	-	-	-	450,225	302,762	752,988	254,733	954,815	1,209,548	704,958	1,257,577	1,962,535
Debt Underwriting	-	-	-	129,441	87,045	216,487	68,720	257,582	326,301	198,161	344,627	542,788
Additional 1 month O&M Reserve	-	-	-	246,507	102,018	348,525	237,343	285,845	523,188	483,850	387,863	871,713
Outstanding Equity Fee	-	-	-	62,511	42,037	104,547	66,373	248,786	315,159	128,884	290,823	419,707
<b>Total Project Cost</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>15,785,501</b>	<b>10,615,260</b>	<b>26,400,761</b>	<b>8,380,626</b>	<b>31,412,310</b>	<b>39,792,937</b>	<b>24,166,128</b>	<b>42,027,570</b>	<b>66,193,698</b>



# Capital Cost - High

Intake Construction Cost Analysis (\$)												
Preliminary Construction Cost Estimate August 24, 2018 High End Version												
Interim (1st Financing)							Permanent Standalone (2nd Financing)			Total		
Alternative	Phase I: Temporary Standalone			Phase II: Pump Station Improvements and Demo			Phase III: Final Improvements			Phase III: Final Improvements		
	Closure	OPA	Total	Closure	OPA	Total	Closure	OPA	Total	Closure	OPA	Total
Improvement Phase	N/A			12-months			24-months			48 months		
Design & Construction Period	N/A			12-months			24-months			48 months		
Operation Date	Jan-19	Jan-19	Jan-19	Jan-20	Jan-20	Jan-20	Jan-23	Jan-23	Jan-23	Jan-23	Jan-23	Jan-23
PW Internal Permitting	\$ -	\$ -	-	817,552	3,162,070	3,979,622	-	3,675,000	3,675,000	817,552	6,837,070	7,654,622
Third Party Permitting	\$ -	\$ -	-	607,096	3,910,207	4,517,303	20,000	789,500	809,500	627,096	4,699,707	5,326,803
30% Design HDR/GHD	\$ -	\$ -	-	-	-	-	-	-	-	-	-	-
Third Party Review	\$ -	\$ -	-	-	112,500	112,500	-	-	-	-	112,500	112,500
Demonstration Project	\$ -	\$ -	-	-	2,000,000	2,000,000	-	-	-	-	2,000,000	2,000,000
Intake/Outfall Construction	\$ -	\$ -	-	11,170,000	-	11,170,000	9,430,000	29,686,467	39,116,467	20,600,000	29,686,467	50,286,467
Construction Management @ 5% of construction	\$ -	\$ -	-	558,500	-	558,500	471,500	1,484,323	1,955,823	1,030,000	1,484,323	2,514,323
Construction Insurance	\$ -	\$ -	-	742,227	132,896	875,123	162,755	512,368	675,123	904,982	645,264	1,550,247
Construction Rent	\$ -	\$ -	-	50,000	50,000	100,000	100,000	100,000	200,000	150,000	150,000	300,000
Post Construction Entrainment and Survival Study	\$ -	\$ -	-	-	-	-	-	1,860,000	1,860,000	-	1,860,000	1,860,000
<b>Subtotal</b>	<b>\$ -</b>	<b>\$ -</b>	<b>-</b>	<b>\$ 13,945,375</b>	<b>\$ 9,367,673</b>	<b>23,313,048</b>	<b>\$ 10,184,255</b>	<b>\$ 38,107,658</b>	<b>48,291,914</b>	<b>\$ 24,129,630</b>	<b>\$ 47,475,332</b>	<b>71,604,962</b>
PW Internal Financing	-	-	-	137,054	92,786	229,840	142,290	532,710	675,000	279,344	625,496	904,840
Transaction Costs, legal	-	-	-	318,868	213,269	532,137	240,265	884,228	1,124,492	559,132	1,097,496	1,656,629
Capitalize Interest	-	-	-	653,679	437,201	1,090,880	644,436	2,323,853	2,968,289	1,298,115	2,761,054	4,059,169
Additional 6 Mo Debt Service Reserve	-	-	-	454,727	304,136	758,863	365,155	1,343,853	1,709,009	819,883	1,647,989	2,467,872
Debt Underwriting	-	-	-	130,736	87,440	218,176	98,509	362,533	461,042	229,244	449,973	679,218
Additional 1 month O&M Reserve	-	-	-	246,507	118,685	365,192	243,143	306,266	549,409	489,650	424,951	914,601
Outstanding Equity Fee	-	-	-	63,136	42,227	105,363	95,145	350,154	445,299	158,281	392,381	550,662
<b>Total Project Cost</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>15,950,081</b>	<b>10,663,418</b>	<b>26,613,499</b>	<b>12,013,197</b>	<b>44,211,256</b>	<b>56,224,453</b>	<b>27,963,279</b>	<b>54,874,673</b>	<b>82,837,952</b>

# O&M Cost - Low

Table B3

Preliminary Operations and Maintenance Cost - Low End Version August 27, 2018										
Alternative		Phase I: Temporary Standalone			Phase II: Pump Station Improvements and Demo			Phase III: Final Improvements		
Improvement Phase		Plant Closure	OPA	Total	Plant Closure	OPA	Total	Plant Closure	OPA	Total
Maintenance Dredging	Fixed	1,800,000	-	1,800,000	1,800,000	-	1,800,000	1,800,000	-	1,800,000
Operator Services	Fixed	-	-	-	300,000	-	300,000	300,000	658,000	958,000
Power	Variable <sup>(1)</sup>	-	3,606,456	3,606,456	488,750	-	488,750	488,750	125,250	614,000
Cleaning & Maintenance	Fixed	-	-	-	-	600,000	600,000	-	1,004,000	1,004,000
Increased Discharge Monitoring	Fixed	-	250,000	250,000	-	250,000	250,000	-	250,000	250,000
Management Overhead	Fixed	-	30,000	30,000	50,000	-	50,000	50,000	100,000	150,000
Rent	Fixed	60,188	374,218	434,406	60,188	374,218	434,406	60,188	374,218	434,406
Insurance	Fixed	-	-	-	147,444	-	147,444	84,876	252,432	337,308
Property Taxes	Fixed	-	-	-	111,700	-	111,700	64,300	191,236	255,536
<b>Total O&amp;M</b>		<b>1,860,188</b>	<b>4,260,674</b>	<b>6,120,862</b>	<b>2,958,082</b>	<b>1,224,218</b>	<b>4,182,300</b>	<b>2,848,114</b>	<b>2,955,137</b>	<b>5,803,251</b>

(1) Electricity for operation of NRG Pumps, plus cost incurred by NRG to operate and maintain the cooling water pumps, fish screens, intake tunnels, and ban racks.



# O&M Cost - High

Table B4

Preliminary Operations and Maintenance Cost - High End Version										
Alternative	Improvement Phase	Phase I: Temporary Standalone			Phase II: Pump Station Improvements and Demo			Phase III: Final Improvements		
		Plant Closure	OPA	Total	Plant Closure	OPA	Total	Plant Closure	OPA	Total
Maintenance Dredging	Fixed	1,800,000	-	1,800,000	1,800,000	-	1,800,000	1,800,000	-	1,800,000
Operator Services	Fixed	-	-	-	300,000	-	300,000	300,000	1,133,000	1,433,000
Power	Variable <sup>(1)</sup>	-	3,606,456	3,606,456	488,750	-	488,750	488,750	125,250	614,000
Cleaning & Maintenance	Fixed	-	-	-	-	800,000	800,000	-	1,004,000	1,004,000
Increased Discharge Monitoring	Fixed	-	250,000	250,000	-	250,000	250,000	-	250,000	250,000
Management Overhead	Fixed	-	30,000	30,000	50,000	-	50,000	50,000	100,000	150,000
Rent	Fixed	60,188	374,218	434,406	60,188	374,218	434,406	60,188	374,218	434,406
Insurance	Fixed	-	-	-	147,444	-	147,444	124,476	391,861	516,337
Property Taxes	Fixed	-	-	-	111,700	-	111,700	94,300	296,865	391,165
<b>Total O&amp;M</b>		<b>1,860,188</b>	<b>4,260,674</b>	<b>6,120,862</b>	<b>2,958,082</b>	<b>1,424,218</b>	<b>4,382,300</b>	<b>2,917,714</b>	<b>3,675,194</b>	<b>6,592,908</b>

(1) Electricity for operation of NRG Pumps, plus cost incurred by NRG to operate and maintain the cooling water pumps, fish screens, intake tunnels, and ban racks.