Attachment A

Evaluation and Screening of Cost Reduction Ideas

Franklin WRF Rebid

								$12,091,000
Item No.	**Description**	**Lead Staff Member**	**Assessment of Impacts**	**Guess at Savings**	**Feasibility of Making Change in Available Time**	**CDM Smith Recommendation**	**Go or No Go?**	**Guess at Value**
1	Removal of FOG System	Tom Nangle	The FOG system adds complexity and risk, and is not imperative to the operation of the system. Eliminating it acutally reduces risks to the City. We would need to delete piping and equipment from a number of sheets, but they are clean deletions that have almost no affect on adjacent facilities, especially if we're leaving the space open for future addition.	$2,000,000	This can be done in a timely manner. It is probably one of the cleanest changes we can make.	We recommend removing this item because it carries a significant cost, it is relatively easy to remove, and actually reduces the project risk.	Go	$2,000,000
2	Elimination of demolition of old structures that don't conflict with new work.	Tim Haggard	The risks are pretty negligible. Only risks would be possibly increasing the final impervious surface area of the site, which may require a redesign of the stormwater impacts and permits. It may also require some new pipes to be shifted slightly.	$300,000	This can be done easily. Only slight modifications to the drawings, minimal effort other than relooking at stormwater permits.	We recommend removing this item because it doesn't introduce much risk, saves the City money with minmal design effort.	Go	$400,000

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
3	Allow contractor to send tank and pipe clean out material to City sludge storage tank for dewatering, as opposed to making the contractor responsible for dewatering of the clean out material.	Bob H.	Eliminating the dewatering will ease a big problem and source of risk for the contractor, but does add some difficulty for the operators. The addition of this sludge will result in inconsistency of the feed sludge to the belt press, which will complicate dewatering some. It will also result in increasing dewatering run time.	$300,000	No problem	We recommend this be pursued as long as the operators don't have issues.	Go	$300,000

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
4	Removal of CHP System	Tom Nangle	The CHP system adds complexity and risk, and isn't imperative to the operation of the system. Eliminating the CHP system actually reduces risk to CDM and the City. The biogas can be utilized in the steam boilers, with the excess being flared. Removing the CHP system also removes the hot water loop, which was mostly providing heat for the digester building, FOG system and as a temporary heating source for the digesters. Pouliot: There will be minor savings from changing the Make-up air unit from hot water/electric to gas, but may be offset by additoinal gas piping. Could also consider eliminating electric unit heaters. Will need to evaluate natural gas supply and whether or not it should be sized for future CHP. There may be additional cost associated with the new gas service due to lower anticipated usage (CHP was largest load). .	$4,000,000	This can be done within the necessary time frame.	If we can't reduce the price by $30M without it, CDM recommends removing the CHP system. However, Franklin will lose a critical element that made them choose the current biosolids system, which was to beneficially reuse the biogas.	No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
5	Section 11363 - Remove one centrifuge from the scope of supply.	Carrie Carden	Deletion of one centrifuge from Section 11363 leaves two centrifuges in the scope of supply. In a 1 duty / 1 standby configuration, the duty centrifuge does not have enough capacity to dewater WAS produced at startup. Operating both centrifuges as duty units offers no redundancy if a unit has to be taken out of service for repair or maintenance.	$390,000 to $650,000 including specified services, specified spare parts, and installation	Yes, it is feasible to delete one centrifuge from Section 11363 and to modify the drawings accordingly.	Not recommended due to loss of redundancy.	No Go	$0
6	Remove the requirement that conduit elbows be made of aluminum coated with bitusmastic paint and covered in shrink-wrap, or only require it for large conduits. Use PVC in lieu of aluminum.	Spencer Perry	The aluminum elbow requirement could be relaxed so that it would only be required for conduit runs more than 100 feet in length where the risk of damage to the elbow is the greatest.	$10,000	This can be done within the necessary time frame.	Recommended.	Go	$15,000
7	Eliminate the requirement for mogul style LBs and conduit fittings for smaller conduit runs.	Spencer Perry	The requirement is intended to protect the cable during pulling. We can change the requirment so that moguls with rollers would only be required for 2-inch and larger conduits used on runs longer than 100'	$10,000	This can be done within the necessary time frame.	Recommended.	Go	$10,000

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
8	Use Schedule 40 PVC in lieu of Schedule 80 PVC for conduits.	Spencer Perry	Schedule 80 conduits is specified for use in exposed locations. NEC requires schedule 80, or metallic conduit, when exposed to physical damage. These are typically specified for use in chemical areas or other corrosive locations.	< $10000	This can be done within the necessary time frame.	Not recommended.	Go	$5,000
9	Use PVC in lieu of coated aluminum for instrumentation conduit that runs in slabs or concrete below grade.	Spencer Perry	The requirement to install instrumentation wiring in aluminum conduit could be relax to Schedule 80 PVC or schedule 40 PVC when encased in concrete.	$50,000	This can be done within the necessary time frame.	Recommended.	Go	$50,000
10	Use a breakaway pull head in lieu of the dynamometer/tensiometer for the low and medium voltage cables.	Spencer Perry	The specifications can be clarified to limit this requirement for large feeders and long pulls. The breakaway head is not recommended for power wiring and the industry standard is to use the dynamometer.	$10,000	This can be done within the necessary time frame.	Not recommended.	Go on clrification	$10,000
11	Use aluminum wiring in lieu of copper for medium voltage cables.	Spencer Perry	Aluminum wiring would result in some redesign to larger conduits, larger wire sizes and the terminations require much more quality control and they are more difficult to make. Aluminum is not recommended for medium or low voltage cables. On some wire sizes, the difference in cost is negated by the larger wire and conduit required for aluminum cable.	$20,000 for medium voltage cable not including redesign.	This can be done within the necessary time frame.	Not recommended.	No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
12	Use Schedule 40 or Schedule 80 PVC conduit in lieu of aluminum for instrumentation cables in conduits.	Spencer Perry	The requirement to install instrumentation wiring in aluminum conduit could be relax to Schedule 80 PVC or schedule 40 PVC when encased in concrete.	$50,000 (this is the same as item 9)	This can be done within the necessary time frame.	Recommended.	Repeat	$0
13	Require the reinforcing steel rebar and enveloped of concrete for duct banks beneath paved surfaces only.	Spencer Perry	Per the specs, the reinforcing steel is only required when laid on backfill covering new pipelines, roads, parking lots or any area subject to vehicular traffic. The details can be clarified so that the cost of reinforcing steel is not applied uneccesairly.	$150,000	This can be done within the necessary time frame.	Recommended.	Go - Clarificatio n	$150,000
14	Modify duct bank separation (12") to minimize trenching costs.	Spencer Perry	The 12-inch separation can be relaxed in most cases. There is 3300 linear feet of ductbank.	$15,000	This can be done within the necessary time frame.	Recommended.	Go	$15,000
15	Reduce the number of necessary disconnect switches for all instrumentation devices.	Spencer Perry	The instrumentation device disconnect switches (actually weatherproof, single pole switches) are low cost items and required by code.	$0	Code Requirement	Not recommended.	No Go	$0
16	Substitute galvanized steel or Unistrut for the custom stainless steel equipment racks.	Spencer Perry	The Panel Mounting Detail on the electrical drawigns shows to use aluminum. The requiremetns in the specification and detail can be reviewed and clarified if needed. This includes 9 racks. Need clarification to eliminate uncertainty.	$10,000	This can be done within the necessary time frame.	Not recommended.	No Go - Clarificatio n	$20,000

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17	Substitute FRP strut for the rods and clamps on the equipment racks in high corrosion areas.	Spencer Perry	This would affect the Alum area which is outdoor and not recommended for FRP. There are 2 racks in this area.	$5,000	This can be done within the necessary time frame.	Not recommended.	No Go	$0
18	Remove the requirement that sump pumps be in every manhole.	Spencer Perry	This will need to be coordinated with the Owner and their maintenance staff. If a portable pump is used, there will be a requirement for an outlet at each manhole which will limit the cost savings. We can eliminate the sump pumps, and add gravel drains or consider manual pumping. Cost savings considers all provisions are removed. Note - there are 18 total manholes, all medium voltage	$36,000	This can be done within the necessary time frame.	Coordinate with the Owner however it is not recommended.	No Go - But look into it further	$0
19	Remove the requirement that fire taping be necessary for medium voltage cables where they are exposed as they run through manholes.	Spencer Perry	Fire taping is an industry standard for medium voltage cables, it is a safety item as well as a reliability item. CDM Smith does not recommend removing this requirement.	$10,000	This can be done within the necessary time frame.	Not recommended.	No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
20	Remove the requirement of Myers hubs on gasketed enclosures on penetrations on the bottom of the enclosures. Only require sealing bushings.	Spencer Perry	The specificaiton could be changed to accommodate this. The cost difference is approximately $40 and this would affect approximately 400 fittings.	$16,000	This can be done within the necessary time frame.	Recommended.	Go	$16,000
21	Remove or reduce the BIM 3D modeling requirement for the conduit layout shop drawing.	Spencer Perry	This is a clarification of the 16000 specification section. BIM 3D modeling is not specified as a method to produce the conduit layout shop drawings.	$10,000	This can be done within the necessary time frame.	This will be clarified.	Go - Clarificatio n	$10,000
22	Reduce the infrared scanning of equipment requirements. Contractor is having difficulty getting a quote for the specifications as written (one scan at the beginning and another 3 months before warranty expiration).	Spencer Perry	This requirement can be clarified and the second scan can be waived.	$10,000	This can be done within the necessary time frame.	This requirement can be clarified.	Go - eliminate 2nd and clarify	$10,000

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
23	Allow the contractor to use the influent pump station generator during temporary sequencing instead of bringing in temporary power or a rental generator.	Bob H.	This depends on the permit conditions. If it is permitted as a backup generator running it for something other than backup could cause violations. A request for a copy of the permit was sent to Michelle and Brian.				No Go	$0
24	Deleted - Not Used.							
25	Consolidate the feeders leaving the BNR basin and move the MCC / distribution panel closer to the BNR	Spencer Perry	This will need to be investigated further. The costs of wire and conduit savings will be offset by the need for outdoor starters and a remote I/O panel at the BNR basins. Cost savings assumes distribution panels, NEMA 4X starters and RIO at the BNR basin. There will be some redesign effort.	$150,000	This can be done in the necessary time frame.	This is currently being investigated.	Go - depending on further investigation	$100,000
26	Reduce the stringency of the lighting specification to allow more competition.	Spencer Perry	The Lighting Fixture Schedule on the drawings indicates "or approved equal". The front end documents need to be clarified. Assume 10% increase on lighitng fixture costs. This is duplicated in Item 88.	$20,000	This can be done in the necessary time frame.	Recommended.	Go - Adjust bid form to eliminate confusion	$20,000

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27	Reduce warranty requirements. Vendors are wondering if they can start warranty at start-up and installation rather than final acceptance, which could be years down the line.	Carrie Carden	See response to Item No. 92. Warranties will begin at Substantial Completion. We will redefine the Partial Substantial Completion requirements for the solids handling systems.	$0	Yes, it would be feasible to modify the specs.	Not recommended.	Repeat - See other items	$0
28	Reduce training and start-up requirements. As spec is written, it requires multiple visits that are several days in duration.	Carrie Carden	We will review each specification's training and startup requirements and may make reductions based on input from the City and from CDM Smith's O&M specialists. Pouliot: Based on the discussions w ith the Contractor's, savings will likely be higher than $2000. In additon to Process Mechanical, this applies to Building Mechanical and Electrical, and possibly Instrumentation. Item 44 has related requirements.	$2,000	Yes, it will be feasible to edit the specifications as needed.	Recommended.	Go, look at this globally. Create spreadsheet recommendations.	**$20,000**

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
29	Clarify independent testing requirements. Vendor assumed worst case because specification was unclear.	Spencer Perry	This can be clarified such that the requirements in 16,000 will preside and the requirements in the individual equipement specificaiton will be deleted. The cost savings assume that independent testing was duplicated for 16121, 16345, 16450, 16430, 16431, 16480.	$50,000	This can be done in the necessary time frame.	Recommended.	Go - Clarificatio n	$50,000
30	Relax the equirement that single manufacturer furnish all of the electrical equipment for the project. For example, GE could provide everything except for 480V panelboards, knocking them out. If more than one vendor could be used then it would open up more competition and drive down price (potentially).	Spencer Perry	The major electrical equipment specifications all list the three major manufacturers, Square D, Eaton, and GE. This is standard language. GE can provide 480v panelboards. This will be clarified on the bid form. Bid form needs to be clarified to eliminate confusion so that more than one vendor can meet requirements	$0	This can be done in the necessary time frame.	Not recommended.	Go - Clarificatio n. Keep single mfgr, but eliminate anything in the way of that stands in the way of acceptable mfgs. Bidding	$50,000
31	Allow contractor to use 150kV BIL on primary substation transformers.	Spencer Perry	150kv BIL is standard for that size transformer.	$6,000	This can be done in the necessary time frame.	Will investigate.	No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
32	Allow contractor to use aluminum instead of copper windings on substation transformers.	Spencer Perry	This would be an accetpable change.	$10,000	This can be done in the necessary time frame.	Possible if VPI.Will investigate.	No Go	$0
33	Allow contractor to use aluminum instead of copper windings on padmount transformers.	Spencer Perry	This would be an accetpable change.	$12,000	This can be done in the necessary time frame.	Recommended	No Go	$0
34	Allow contractor to change the copper buss to aluminum on medium voltage switchgear.	Spencer Perry	Not recommended.	< $10000	This can be done in the necessary time frame.	Not recommended.	No Go	$0
35	Allow contractor to use aluminum instead of copper windings on low voltage transformers.	Spencer Perry	This would be an accetpable change.	$9,000	This can be done in the necessary time frame.	Recommended	No Go	$0
36	Allow contractor to remove the K4 requirement on 3000kVA padmounted transformers.	Spencer Perry	The K4 requirement can be removed.	$6,000	This can be done in the necessary time frame.	Recommended	Go	$6,000

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
37	Allow specific manufactuer relays on MV switchgear to be optional.	Spencer Perry	This will need to be coordinated with the Owner. It does not represent a significant savings. There are several relays that we would not recommend, based on our experience so this will need to be carefully coordinated.	< $10000	This can be done in the necessary time frame.	Not recommended.	Go - list two or three not completely open	$5,000
38	Lower the rating of the 40kA required for all Metal-Clad.	Spencer Perry	This may be able to be reduced, this will require some investigation. Assume if it can be reduced that it would save approximtely 5% of the cost of the switchgear	$40,000	This can be done in the necessary time frame.	Will investigate.	Go - depending on further investigation	$20,000
39	Eliminate the spare parts allowance for MV switchgear.	Spencer Perry	This is a duplicate of Item 191.				Repeat	$0
40	Eliminate the drive burn in on LV MCC.	Spencer Perry	This can be eliminated. It is included in Itme No. 135.	$10,000	This can be done in the necessary time frame.	Recommended	Go	$10,000
41	Lighten specification requirement on LV MCC for sole sourced frequency drives.	Spencer Perry	This is a duplicate of Item 132.				Repeat	$0
42	Eliminate the 80 degree rise requirement on LV transformaters, or reduce to 115 or even 150.	Spencer Perry	This can be reduced in some cases.	< $10000	This can be done in the necessary time frame.	Recommended.	No Go	$0

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43	Lengthen the bidding period. Some vendors could not get quotes prepared in time.	Bob H.	Lengthening the bid period would mean we would not be able to meet the current June bid opening. However, our gut feel is that it could make a significant difference in electrical and mechanical cost. Another option would be to figure out how to get the word out on the rebid so they could get a jump on this.	$2,000,000	Not a problem for the design period, but would increase the bid period	Either do this or implement a campaign to get the word out.	No Go	$0
44	Reduce the number of times the manufacturer would have to come back to the site.	Carrie Carden	We will review each specification's requirements for manufacturer's services and may make reductions based on input from the City and from CDM Smith's O&M specialists. Pouliot: Based on the discussions w ith the Contractor's, savings will likely be higher than $2000. In additon to Process Mechanical, this applies to Building Mechanical and Electrical, and possibly Instrumentation. Item 28 has related requirements.	$2,000	Yes, it will be feasible to edit the specifications as needed.	Recommended.	Go, review specs to see if any trips/times can be reduced	$0
45	Deleted - Not Used.							

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
46	Allow the contractor to own some of the schedule float. Right now the way the specs are written gives all of the float to the owner.	Bob H.	Sharing the float with the contractor would put the contractor in the position of using a portion of the float when things go wrong and thus would allow them to back off on building as much contingency for LDs into their budget. It would push more risk to the owner in that the owner would have a little bit more chance of getting claims for delays. We would guess that the contractor would carry maybe 30 to 60 days LDs as contingency.	$300,000	No problem	Recommend doing this.	Go	$200,000
47	Deleted - Not Used.							
48	Change the 5 day work week to a 6 day work week.	Bob H.	I'm not sure if the cost would descrease by doing this. It seems like we would have to decrease the project time in conjunction with this to decrease cost. Note that the electrical and mechanical contractors were saying that the prime contractors were already forcing them into working 55 hour weeks, which means they would be paying each of their onsite staff 15 hours at 1.5 times their normal rate, which increased their cost. This will increase engineering contract cost.	$0	Simple change, but recommend against this.	Recommend against this.	No Go, but make sure special occassions they can do six day.	$0
49	Lower the building wage rate.	Zack Daniel					Repeat	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
50	Lessen the requirements of the photography specification. Keiwit says they carried $277K for this.	Bob H.	I think we can reduce the magnitude of the effort some without degrading the value too much. However, I don't think we can half the cost. Kiewit said that they normally budget $15 to $20K for photography. I think it would be a mistake to do that. Lack of photography makes it easier for a contractor to cover things up and harder to figure out where problems are and fix them when things go wrong.	$75,000	No problem	Recommend reducing some.	Go	$75,000
51	Change the stringency of the operation of the biosolids system so that it does not have to be a certified operator, and allow the plant staff to operate it.	Tom Nangle	See answer to question 95.				Repeat	$0

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52	Modify the perscriptiveness of the work sequencing (allowing flexibility for the contractor to perform work the in a better/cheaper/faster order).	Bob H.	The constraints in the MOPO section have been thought through very carefully, so there probably aren't constraints that aren't necessary. However, in some cases we get specific about bypass pumping requirements. We may be able to change those to purely constraints to reduce the amount of prescriptiveness. However, in talking to them the other day I get the feeling that there are gaps in their understanding of the system and the reasons for the constraints. I want us to be careful to not allow transfer of risk to the City in the form of non-compliance and reduction of accountability on the contractor.	$50,000	Can be done in the available time.	I think the MOPO section should be revisited to look for ways to make it less prescriptive that don't put the City at risk.	Go, review spec again	**$10,000**
53	Allow more items than just the process mechanical equipment to be tax exempt.	Zack Daniel					Go, we will check other CDM projects to see if there is a precidence for this.	$0

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54	Allow contractor to introduce sludge back into plant process instead of needing to haul it to a landfill.	Bob H.	This suggestion meant allowing them to pump their sludge into other liquid process basins. This would be risky as the impacts on the processes would be unpredicable. However, screening and pumping of sludge to the sludge tanks might work well. This concept is discussed in Item 3.	$0	Can be done in the available time, but we recommend against the change.	Recommend against this.	No Go	$0
55	Take I&C integration out of the contractor's scope and put it in the City's or CDM Smith's hands.	Scott W.	I don't see the benefit. The I&C integration needs to be done regardless, so the cost will be borne by the City in some way. Additionally, this will greatly increase project risk. Splitting the work up into two or more parties, all other things being equal, will add cost for coordination and overhead. Possible advantages, 1. Giving the City more control over who is selected for PCSS/AESS, 2. Gives CDM Smith the opportunity to do the work, but neither helps project cost. Bob's Comment - A lot of times I&C integration becomes the thing that holds up getting to substantial and final completion because there are often lots of difficulties. We believe implementing this suggestion would be a mistake of epic proportions.	-$1,000,000	This can be done within the necessary time frame.	Not recommended.	No Go, but look into setting up a contract with Lord & Company with an assigned cost in a line item.	$0

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56	Ease the requirements on manufacturer services, training, site visits, and inspection.	Carrie Carden	We will review each specification's requirements for manufacturer's services, training, site visits, and inspection, and may make reductions based on input from the City and from CDM Smith's O&M specialists.	Sum of Items 28 and 44 above	Yes, it will be feasible to edit the specifications as needed.	Recommended.	Repeat	$0
57	Allow excess soil and rock material to remain onsite rather than haul it off.	Tim Haggard	Kiewit indicates that there is about 30,000 CY of excess rock and soil material that must be hauled offsite. If we assume a cost of $15 per CY savings, this would have a value of $450K. Stockpiling of materials onsite might just kick the can down the road (i.e., it might have to be moved later), however, it would be a big savings. Keeping rock onsite is more of a concern than keeping soil onsite. It's possible that we could construct berms to screen the site from neighbors, which might be a positive. So taking some savings away for hauling rock offsite and revegetation, may be worth $250K.	$250,000	Can be done in the available time	Recommend doing this.	Go, create berm	$250,000
58	Redesign the bypass at the BNR junction (contractor to send Bob a proposal).	Bob H.	I'm not sure what Kiewit had in mind, but it is worth talking to them to find out. It may save money.	$50,000	Can be done in the available time	Recommend a call with Kiewit to discuss and implement if it makes sense.	Go	$50,000

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59	Section 13212 - The steel-bolted tanks ended up being sole-sourced due to the specification requirements for tank size, interior coating, and pressure requirements. Find some way to allow more flexibility in specifications to open up competition.	Carrie Carden	The internal lining for the Softened Water Storage Tanks was specified as high-temperature epoxy. Highland Tank and Tarsco Bolted Tank were the two circled manufacturers on the bid forms. We need to identify more competitors who can provide the specified tanks.	$10,000	Yes, it is feasible to discuss with vendors and modify Section 13212.	Recommended.	Go - identify more tank mfgs and send spec to mfgs for review.	$10,000
60	Do not build a temporary road, just use Claude-Yates to come onto the site.	Bob H.	This would result in all traffic being routed through the school and athletic field area.	$150,000	Can be done in the available time, but we recommend against the change.	Recommend against this.	No Go	$0
61	Eliminate the Cambi system.	Tom Nangle	See answer to question 106.				Repeat	$0
62	Change the solid processing building material from brick to pre-engineered metal.	Michael Alford and Justin Boggs	Steel frame building would be designed by CDM Smith due to support of large equipment. Metal panel cladding system is not considered here due to Aesthetics. Steel framing is less cost, results in less weight, smaller footings, less schedule time but, requires more maintenance including initial coatings.	$1,000,000	Tight but feasible, would be better to consider along with layout changes to the SPB to reduce square footage.	Don't recommend making the change unless part of larger building re-design, (see item 86 for more info)	Repeat	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
63	Eliminate the wet lab and the bio lab.	Carrie Carden	Elimination of laboratory casework and equipment from these spaces (and leaving them unfinished) would require the City to procure and install these items themselves, and finish the spaces. Pouliot: Need to determine extent of HVAC, Plumbing, and Electrical utilities provided by Contractor.	$200,000 allowance plus approx. $100,000 in lab casework = $300,000	Yes, it is feasible to eliminate the allowance and casework from the bidding documents.	Recommended.	Go, but anything over $10K in equipment list leave in allowance.	$200,000
64	Reduce spare parts to only those that are routine maintenance (i.e., will definitely be used within a year or two) and those that are very long lead items.	Carrie Carden	Agreed. Spare parts lists will be culled to include routine maintenance parts and long lead time items. Pouliot: In additon to Process Mechanical, this applies to Building Mechanical and Electrical, and possibly Instrumentation.	$200,000	Yes, it is feasible to modify the specifications.	Recommended.	Repeat	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
65	Section 11265 - Eliminate the need for a new UV system, or repurpose the old one some how.	Carrie Carden	The existing Trojan UV4000 medium-pressure system is designed for a peak hour flow of 36 mgd, compared to the specified peak hour flow of 33 mgd for the new system. The existing UV structure was in good condition as of the 2011 condition assessment. Continued use of the existing system is possible, but it is obsolete and inefficient compared to the specified system, and replacement parts can be hard to find. The scarcity of replacement parts increases the risk of a failure and violation of the plant's discharge permit.	$2,400,000	Yes, it is feasible to eliminate the new UV system and structures from the plans and specs, and adjust the Civil, Electrical and Instrumentation plans and specs accordingly.	Not recommended due to existing system's obsolescence and the associated reliability concerns.	No Go	$0
66	Eliminate the necessity for a filter header pipe.	Bob H.	The filter header upsizing is needed to allow increasing the flow up to 16 mgd ADF/32 mgd peak flow. Other options were evaluated during design and unfortunately this was the only way to achieve what we need to achieve. Another way to make the hydraulics work would have to be developed and the cost of the design plus the cost of implementing the other method would almost certainly be more than the savings from eliminating the header changes.	$0	Not doable in the available design time.	Recommend against this.	No Go for now. Depends on TDEC feedback	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
67	Section 11363 - Eliminate the spare scroll, since Andritz has the scroll exchange program, which is typically provided. (Suggested by Andritz Separation)	Carrie Carden	We are checking with the other listed centrifuge manufacturers to find out if they offer a similar scroll exchange program. So far, Alfa Laval has said they do not offer a scroll exchange program.	$53,309	Yes, it is feasible to modify Section 11363.		Repeat, compete research on scroll exchange	$0
68	Section 11363 - Let the customer supply the polymer selected for start-up and testing as this is a regular part of their operations. (Suggested by Andritz Separation)	Carrie Carden	We have run into situations where the client has been unable to procure the manufacturer's selected polymer due to purchasing department restrictions. It would be better to leave the supply of polymer in the hands of the manufacturer.	$20,000	Yes, it is feasible to modify the specifications.	Not recommended.	No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
69	Section 11363 - Witnessed shop testing is covered by the contractor, but is an unnecessary expense. (Suggested by Andritz Separation)	Carrie Carden	We are willing to waive this requirement if the City is willing to waive it.	$24,023	Yes, it is feasible to modify Section 11363.	Recommended.	Go, but don't eliminate for I&C. Must get certified test results. City may opt to come to any and set notificatio n reqs.	$24,000
70	Section 11363 - Delete the requirement for the 18 days of 24 hours per day start-up assistance (Suggested by Andritz Separation)	Carrie Carden	We should consider reducing (not deleting) this requirement with input from the City and from CDM Smith O&M specialists.	$53,982	Yes, it is feasible to modify Section 11363.	Recommended.	Repeat	$0
71	Section 11363 - Modify the post start-up assistance by reducing 2 trips and 1 day (Suggested by Andritz Separation)	Carrie Carden	We could consider reducing this requirement with input from the City and CDM Smith O&M specialists.	$5,191	Yes, it is feasible to modify Section 11363.	Recommended.	Repeat	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
72	Section 11363 - Modify the post start-up maintenance training by reducing 3 trips and 1 day (Suggested by Andritz Separation)	Carrie Carden	We could consider reducing this requirement with input from the City and CDM Smith O&M specialists.	$11,194	Yes, it is feasible to modify Section 11363.	Recommended.	Repeat	$0
73	Section 11363 - Delete the requirement for the 20 days of on call Maintenance supervision assistance (Suggested by Andritz Separation)	Carrie Carden	The City could enter into its own maintenance assistance contract with the centrifuge manufacturer. The agreement would be separate from the construction contract.	$26,672	Yes, it is feasible to modify Section 11363.	Recommended.	Repeat	$0
74	Section 11363 - Delete the VFDs from the spare parts. They are readily available and will be old inventory by the time they are put into service (Suggested by Andritz Separation)	Carrie Carden	The VFD specification does not require spare drives, only spare parts to cover the first five years of operation. We could change the requirement in Section 11363 to require spare parts to cover the first two or five years of operation.	$8,702	Yes, it is feasible to modify Section 11363.	Recommended.	Repeat	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
75	Section 11336 - Change the sludge screen from all 304 to painted mild steel with SS screens and pressing zone screw (standard design). (Suggested by Hydro International)	Carrie Carden	Section 11336 currently specifies non-wetted metallic parts to be mild steel, and stainless steel for the screens and screws. Huber Technology's Strainpress is all stainless steel. Changing the specification to mild steel could give Hydro a pricing advantage over Huber.	$7,500	Yes, it is feasible to modify Section 11336.	Not recommended	No Go	$0
76	Section 11336 - Remove one set or both sets of spares for the screens. (Suggested by Hydro International)	Carrie Carden	We are checking with both of the listed screen manufacturers to identify any spares that may be long lead time items, and to identify the spares that they recommend for the first two years of operation.		Yes, it is feasible to modify Section 11336.		Repeat	$0
77	Section 11336 - Remove air compressor from scope if site has clean dry air available to supply to pneumatic panel. (Suggested by Hydro International)	Carrie Carden	A building compressed air system is not available. Leaving the compressed air system (usually an off-the-shelf compressor with valving and air distribution to each machine) in the equipment manufacturer's hands would be preferable to a single building-wide compressed air system in order to ensure unity of responsibility (no finger-pointing). A central compressed air system would only shift the cost from the manufacturers to another supplier and the contractor.	$0	Yes, it is feasible.	Not recommended	No Go	$0

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78	Change controls from ConpactLogix to MicroLogix and reduce OIT from 10" to 4 "or 6".	Scott W.					No Go	$0
79	Adjust the building wage rates on the project, particularly with respect to the HVAC/plumbing trade. Clarify with the Tennessee DoT what the specific Davis-Bacon requirements are.	Zack Daniel	Working with DOL to establish wage rates is likely to only have positive impacts. A letter to the Department of Labor has been drafted for Michelle's signature. The letter requests establsihing wage rates for the project. If $50 million of price is labor and a 1 percent reduction is achived, then this would result in a savings of $500,000.	$500,000	DOL is supposed to respond in 90 days, so we should get an answer during the bid period if we get the letter sent soon.		Go	$500,000
80	Deleted - Not Used.							
81	Lessen the requirements of manufacturer supervision, inspection, start-up, testing, and training. The specifications as-is do not allow a local representative.	Carrie Carden					Go, but limited and CDM to assess and provide of equipment where req. is lessened	$0

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82	Lessen the intensity and detail for the scope and responsibilities of the support/seismic engineer. Clarify the role and the scope.	Tom Nangle	This applies across Building Mechanical, Process Mechanical, and Electrical with additional input from structural. Based on discussions with the Contractor, requirements in 15140 were applied across all disciplines. Item 83 is related to this. Look at adjusting the specification to allow pull tests to verify. Representative sampling. Look at requirement for every support being analyzed.	$50,000	Yes, it is feasible.	Recommended.	Go, See Red text to the left	$50,000
83	The support specifications can currently be interpreted to mean that every support and hanger has to be designed, reviewed stamped, and certified after installation. Relax these requirements.	Tom Nangle	See item 82	See item 82	Yes, it is feasible.	Recommended.	Repeat, see above	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
84	Eliminate Digester Building, Redesign Biosolids Site Plan and SPB	Tom Nangle	Huge impact, almost a complete redesign of drawings, but specs wouldn't need to change much since our process equip shouldn't change too much	A LOT (maybe $4M for SPB, $2M for Digester Bldg, $? for site work)	This would take a long time to do. Cannot be completed within proposed schedule.	Not recommended. High engineering cost and time commitment.	No Go	$0
85	Split the project into two projects	Bob H.	It is probable that this would increase competition with prime contractors as well as subcontractors. It is hard to say what the cost savings would be as they would be driven by market forces that none of us has the expertise to predict. On one hand there would be more qualified contractors bidding, which would reduce the price. On the other hand, it seems like the total overhead would increase unless the same firm got both projects. However, this would also result in the need for oversight and control of two projects, potential for claims between contractors, and possibly other negatives. From an engineering standpoint, splitting the documents into two projects would be time consuming and costly.	Don't know	It would be difficult or maybe not possible to get it done in the available schedule.	Recommend against this, but not strongly.	No Go for now.	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
86	Somehow encourage Primes to split the electrical and building mechanical into two contractors each.	Bob H.	This would at least foster competitation at the subcontractor level. This would increase prime contractor cost and engineering cost, but is likely to have a big impact on the electrical and mechanical costs. The higher prime cost is due to managing two subs, doubling the submittal effort on electrical and mechanical items, potential conflicts in the equipment on the two, etc. In speaking to Primes I don't get the impression that they would do this.	>$3 million	I think it is doable in the time if we start now.	Recommend doing this, but don't know what it looks like.	Already Did	**$1,000,000**
87	Get word out on rebid time frame to both previous and new contractors. Especially primes, electrical, and building mechanical.	Bob H.	This would foster competitation. The number at the right is a pure guess.	>$3 million	I think it is doable in the time if we start now.	Recommend doing this, but don't know what it looks like.	Go, but work out details with City	**$1,000,000**

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
88	Review electrical equipment specifications (i.e., all equipment requiring a single supplier) to make sure at least three suppliers can provide all of the equipment. Verify that the "circle your mfg" part of the bid sheet doesn't defeat the or equals in the technical specifications.	Spencer Perry	This needs to be reviewed and revised. Assume that lighting fixtures and VFDs incurred a 10% increase.	$60,000	This can be done in the necessary time frame.	Recommended.	Go - City will verify what guys can work on and then get back to us on this.	$30,000

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
89	Review HVAC and plumbing equipment specifications (i.e., all equipment requiring a single supplier) to make sure at least three suppliers can provide all of the equipment. Verify that the "circle your mfg" part of the bid sheet doesn't defeat the or equals in the technical specifications.	Paul Pouliot	Based on discussions with the Mechanical Contractor, "or equal" requirements in Section 00700 were the source of the perceived sole sourcing of Building Mechanical Equipment.	$50,000 to $100,000	Yes, it is feasible.	Recommended.	Go, but a repeat	$0
90	Review other equipment that is "grouped" to make sure at least three suppliers can provide the equipment.	Carrie Carden	Equipment to be reviewed includes, but is not limited to the gas engine generator equipment (if it remains in the specs) and digester gas handling and safety equipment.	$200,000	Yes, it is feasible.	Recommended.	Go, see if we can come up with a way to spreadsheet packaging	$75,000

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
91	Section 00300 - Review the "circle your mfg" part of the bid sheet doesn't defeat any of the or equals in the technical specifications. Pouliot: Basaed on discussions with the Contractors, this applies to Building Mechanical, Electrical, and possibly instrumentation as well. Related to Item 89 for Building Mechanical.	Carrie Carden	We will review.	$100,000	Yes, it is feasible.	Recommended.	Go	$150,000
92	Change warranty requirements so that they start at partial substantial completion or beneficial use.	Carrie Carden	The specifications currently call for partial Substantial Completion of the liquid treatment processes and overall Substantial Completion of the entire solids treatment process. However, it is reasonable to allow partial Substantial Completion of each solids treatment process without adversely affecting start-up or commissioning.	Possibly more than $100,000	Yes, it is feasible.	Recommended.	Repeat	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
93	Eliminate requirement that Contractor pay for inspection cost for time in excess of defined working hours or establish an allowance instead.	Bob H.	What they are wanting to do is to set up a bank to pull extra engineer inspection time from instead of managing their schedule and forces to minimize work outside of the contract allowable times. My opinion is that the City will pay more doing it this way.	-$50,000	Simple change, but recommend against this.	Recommend against this.	No Go	$0
94	Deleted - Not Used.							
95	Change the requirements for the biosolids system operator to a non-certified operator or put operation on the plant staff. Kiewit they have $1.8 million in for operators.	Tom Nangle	This would lead to contractors using "operators" that aren't certified and may not have experience with the process systems we're introducing. TN law reequires that there be one ORC for the whole plant. Franklin's regular ORC is all that is needed, and everyone can be working under his/her charge. CDM Smith could be the certified operator, or operate under Franklin's license to direct the contractors and plant staff during commissioning.	Assuming could save about half of the cost ($900,000)	This would be a specification change, and could be done. Would need to have more coordination with the City of Franklin in terms of modifying the commissioning plan.	Recommends clarifying how much could be saved if the operator certification is removed. The assumption is it would be less than $1.8M	Go - CDM to come up with exact concept for considerat	$500,000
96	Deleted - Not Used.							
97	Deleted - Not Used.							
98	Deleted - Not Used.							
99	Revisit bypassing requirements for manhole right before the influent pump station.	Bob H.	This has to be researched to make sure it is feasible. If it is feasble, it could reduce the costs some, wouldn't be hard to do, and has only positive impacts if thought out well.	$20,000	Not a problem.	Recommend researching this and taking action if it is feasible.	Go, investigati on	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
100	If the requirements are not changed to allow the contractor to pump sludge to the City's sludge dewatering tanks, then change the dewatering requirement to allow non-mechanical dewatering of sludge.	Bob H.	Non mechanical dewatering methods, for example geotubes, require berms and containment, take up lot of space, require a long time to dry, are messy, and may or may not have odor. Dewatering with mechanical methods have their own issues as they require Frac tanks for storage of sludge, take up a fair amount of space (maybe a little less than geotubes), and probably have odor. However, dewatering is completed much more quickly.	$40,000	Not a problem	On the fence	No Go	$0
101	Eliminate requirement that contractor purchase chemicals.	Carrie Carden	See response to Item No. 68. This situation is less of a problem for the commonly available wastewater treatment chemicals such as alum. Eliminating chemicals from the contractor's scope of supply places the cost on the Owner but, with the elimination of markups, may reduce overall project chemical costs by about 10 percent.	$20,000 plantwide	Yes, it is feasible. Several specification sections may have to be edited to reflect this change.	Recommended.	Repeat	$0
102	Eliminate or reduce requirement for screened gravel beneath the duct banks.	Spencer Perry	This requirement can be removed or reduced based on structural input. Cost savings based on removing the requirement. Also - clarify the depth to top of duct bank.	$10,000	This can be done in the necessary time frame.	Recommended.	Go - reduce to 6 inch	$10,000

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103	If the FOG system isn't eliminated, replace the polymer precast associated with the FOG system with something else. Kiewit said they have $500K in the polymer precast.	Justin Boggs	Conventional precast structures could be used but would then require coating the concrete surfaces in contact with FOG. Coatings would require rehbilitation over time, typically 15 to 20 years if installed correctly.	150k	Feasible	Not worth the maintenance. Some of the seemingly exorbitant cost is like design fees for the complicated precast system and interconnections.	No Go	$0
104	Allow crushing demolition concrete to produce sub-base materials. Note that TDOT limits recycled concrete to 25%.	Tim Haggard					Repeat, No Go	$0
105	Make plant staff responsible for monitoring of bypass pumps at night instead of contractor manning these.	Bob H.	This is a risky proposition. I don't think we want someone watching their equipment fail and then being accused of being complicit in the failure. As an alternative we may want to consider allowing them to set up an autodialer, but response time on that also presents some concerns.	$30,000	Not a problem	Recommend against. Not worth added risk.	No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
106	Eliminate THP system and install more digesters.	Tom Nangle	This would change the pre-dewatering centrifuges into GBTs, and double the amount of digesters and associated equipment. It also makes it not possible to achieve Class A biosolids (Class B product instead). This would reduce the solids destruction and biogas production, this would result in more than double the amount of trucks entering and leaving the site, and more odorous biosolids.	~$2,000,000 ($5.5M in eliminating THP, $3.5M in additional digester capacity, assumes wash in changes for thickening and dewatering)	Cannot get this done by June, it requires significant changes in digester design, digester building design, and Solids Processing Building Design. If we do this, we should start with a blank canvas, new site plan, new building layouts, etc.)	Do not recommend due to lack of time and how this abandons the main reasons for pursuing a new biosolids facility, and its associated benefits. Also requires almost a complete redesign.	No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
107	Change electrical building exterior treatment to split face block or change to metal building.	Michael Alford	The exisitng buildings on site are majority brick exterior. The addition to the operations building does include some spilt-face CMU accents but still the majority of the operations building is brick. The use of split face CMU on one building would make it look out of place on the site from an overall site aesthetic.	$35,000	It would impact all the architectural dwgs for the electrical building and require the additon of new architectural details. It would also require updated strucutral calculations. It could be done.	Based on the limited savings It does not make sense to have one building on site majority spilt face CMU exterior when all the other buildings are majority brick exterior. It will look out of place.	Go, see other items	$35,000

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
108	Change the roof of the solids processing building to joist and deck. This will reduce the roof cost and may decrease the rebar in the structure below the roof.	Justin Boggs	Changing roof materials would place small thickness roof deck and metal bar joists in the dewatering building which would need to be coated. Maintenance of coatings would be a future concern. Using these materails results in a lighter roof system which chases all the way through the building to the foundations. I was guessing based on cost that shipping the precast double-tee roof could have been an issue but that doesn't appear to be indicated by any of the contractors.	$0	Feasible	Savings are realized in the structure only, eliminating complicated roof beam system and slightly reducing footings. Roof systems are more or less the same costs (essentially trading labor for material). Overall building height would be reduced by atleast 2-ft.	No Go or? Go, only if other changes requiring redesign	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
109	Change the seismic importance factor for the plumbing system to match the rest of the project.	Paul Pouliot	The seismic importance factor for non-structural components is different than the seisimic importance factor for structural. Plumbing specifications will be modified to apply the 1.5 importance factor only to the ES/EW's and related components (water piping, gas piping, and water heaters) as required for life safety components. Similarly, for HVAC the specs will be modified to apply the 1.5 importance factor only to systems provided to reduce electrical hazard classification. All other plumbing and HVAC components will be assigned an importance factor of 1.0.	$25,000	Yes, it is feasible.	Recommended.	Go, clarify so it is clear the 1.5 factor only applies to life safety systems	$25,000
110	Eliminate requirement that water for testing be purchased from the Owner.	Bob H.	If the contractor has to pay for potable water and plant water then they will be more careful how they use it. On the other hand, the City will pay the cost of the water plus markup plus meters.	$5,000	No problem	On the fence	Go, but they must have a meter on potable and relclaimed	$5,000
111	Eliminate requirement for factory involvment in the field joints for FRP duct systems.	Bruce Singleton	Full time involvement of factory in field joints is not necessary. However, factory training on first joints would be good.	$5,000	Is feasible	Recommend	Go, change to one day of factory training	$5,000

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112	Check FRP duct requirements as two of three vendors that were solicited could not meet the specifications and the third said they could meet them but never provided a written proposal.	Bruce Singleton	Listed manufacturers were Daniel Mechanical, Spundstrand, and Ameron Bondstrand.				Go, Re-review specs, call vendors, modify as necessary to make avaialble to more than one	$10,000
113	Change the solids processing building to a lower seismic category.	Justin Boggs	The Solids Building seismic design category could be changed to B based on the rigid roof diaphragm. This was not done for two reasons: 1. The Solids Building would be the only structure with a different design category, creating confusion across all disciplines, 2. The electrical and control/lab rooms are in support of other structures and process in seismic category D. If changed the solids process may not remain operational after the design seismic event. Seismic category D is intended to keep structures operational.	$1,500,000	Feasible	Loss of the electrical room could significantly hinder operations of the facility. Better cost savings measures would be to reconfigure the building rather than reducing the design level.	Go - City wants to do this	$1,500,000
114	Eliminate Odor Control Systems	Bob H.	Issues with neighbors	$2,000,000	Can be done	Recommend against	No Go	$0

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115	Change odor control duct material from FRP and Type 316SS to aluminum	Paul Pouliot and Bruce Singleton	Aluminum ductwork will not hold up as well when exposed to corrosive airstreams. Could consider using Type 316 stainlless steel for both indoor or outdoor odor control ductwork. Could consider using Type 304 stainless steel ductwork for both indoor and outdoor odor control duct. Requires input from Process Mechanical.	$120,000 to $280,000	Yes, it is feasible.	TBD	Go, but change to aluminum only for interior where not connected to equipment.	$120,000
116	Eliminate redundant HVAC systems in electrical buildings and electrical enclosures	Paul Pouliot	Failure of primary HVAC system could lead to overheating of electrical gear, and ultimately shutdown of associated process mechanical equipment, especially rooms with VFD's.	$175,000	Yes, it is feasible.	Not Recommended	No Go	$0
117	Ventilate electric rooms instead of air conditioning them.	Paul Pouliot	During high ambient temperatures, ventilation only could lead to overheating of electrical gear, and ultimately shutdown of associated process mechanical equipment, especially rooms with VFD's.	$225,000	Not feasible. Significant modifications to HVAC, Electrical, Architectural, and Structural drawings, including addition of roof/wall openings and louvers.	Not Recommended	No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
118	Eliminate access fans on equalization tank and instead have them use personal ventilation systems or temporary ventillation systems.	Paul Pouliot	Fans were provided for ventilation during maintenance when tanks are empty. Temporary ventilation systems would need to be provided for this function.	$60,000	Yes, it is feasible.	Recommended.	No Go	$0
119	Ventilate alum building instead of air conditioning it.	Paul Pouliot	Does not appear to be any equipment that is sensitve to heat. Potential for increased corrosion.	$1,000	Yes, it is feasible, but savings likely too small when considering cost of effort to implement.	Not Recommended	No Go	$0
120	Eliminate allowance for purchase of lab equipment and have it purchased directly by the City.	Carrie Carden	City would have to work through purchasing to buy equipment. Would save markup.	$210,000	No problem	Recommend doing this.	Repeat	$0
121	Change the sanitary piping from cast iron to PVC	Paul Pouliot	PVC less durable, especially in above grade applications.	$20,000	Yes, it is feasible.	Recommended.	Go, but not in hot water situations	$15,000
122	Change water piping in buildings from copper to CPVC.	Paul Pouliot	CPVC less durable, especially in above grade applications.	$12,500	Yes, it is feasible.	Recommended.	Go	$12,500

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
123	Eliminate some of the emergency shower/eye wash stations	Bob H.	I've never visited one of our sites after construction and thought "that emergency eye wash station seems unnecessary", but I have once or twice thought "we could have benefited from another eyewash station at that location".	$10,000	Not a problem, but recommend against it.	Stongly recommend against this.	No Go	$0
124	Eliminate fire protection system at solid processing building	Paul Pouliot	Fire protection required by Building Dept/Fire Marshall. Unlikely that they will reconsider unless significant changes are made to reduce size of solids building	$200,000	Yes, it is feasible.	Not Recommended due to Building Dept/Fire Marshall requirements.	No Go, but make it a sepate line item	$0
125	Eliminate jet mixing system in equalization basin	Jon Lapsley	Minimal impacts, was already a deduct alternate	$450,000	Very feasible, deletion of work and spec	Yes	No Go but change to an add alternate	$450,000
126	Eliminate the dome on the EQ tank, but design to add the dome later	Jon Lapsley	Minimal impacts, dome structural design is by Crom, our change would be to the spec and deleting the dome on the drawings. Note that if we eliminate the dome we should also then in turn delete the activated carbon odor control system and the HVAC fans on top	Up to $1.5M best guess for dome, odor control and HVAC fans	Very feasible for deletion of the work but impacts possible odor complaints to the City long term.		No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
127	Reduce the size of the EQ tank. Can the tank remain the same footprint but shorter and be designed to be extended upward later?	Jon Lapsley	Not the most cost effective way to build EQ, could save initial capital by defering more EQ capacity to the future. Typically carry about $0.50/gallon for tank cost	$2M +/- now, defer cost for second tank to the future	Very Feasible to make this change in the avialable time.		No Go	$0
128	Modify the pressure class ratings on the ductile iron pipe.	Bob H.	Specified pressure and thickness classes are consistent with the CDM Smith Master Specs. Relaxing these class requirements is not likely to save much money and would require additional engineering time and expense to verify the right class for each piping application.	$0	It may be feasible for someone to check each system and specify the appropriate pressure/thickness class.	Not recommended	Go, Revisit to see if thinner wall pipe can be used	$0
129	Modify the pipe linings.	Bob H.	Pipe linings have been specified per the CDM Smith Master Specs. The more expensive pipe linings such as glass lining have been reserved for the systems that need it.	$0	Yes, it is feasible.	Not recommended	Go, look at changing the linings on post clarifier piping. Revisit others for what they are used for.	$10,000

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
130	Remove two of the three riser valves/zones in the sprinkler system.	Paul Pouliot	Fire protection design is a peformance specification Contractor is required to provide detailed design and hydraulic calculations. Do not recommend modifying current design criteria. However, the notes on drawings and specs could be modified to allow reduction in the quantity of riser valves/zones based on the hydrauic calculations.	$25,000	Yes, it is feasible.	Recommended.	Go, but leave 3 risers and allow fewer if they can support with calcs.	$0
131	Change roofing materials	Justin Boggs	Not considered. Unknown request. It could be advantageous to use the same roof system everywhere (i.e. all precast concrete or all joist and deck) but savings would be insignificant.	$0			Repeat	$0
132	Allow the VFDs to be submitted in one package, instead of requiring them to be submitted with their associated equipment packages.	Spencer Perry	This could work if all VFDs were by a single manufacturer. However, the downside is that a submittal review comment would need to say the VFDs are approved contingent on approval of its associated pump and motor, for example. There are approximately 18 VFDs.	$40,000	This can be done in the necessary time frame.	As long as all VFDs were by the same manufacturer, we would recommend it.	Go	$40,000

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
133	For the hydrogen sulfide removal system, consider changing the tanks from stainless steel to fiberglass. (Suggested by Eshelman Company)	Tom Nangle	After looking into this, Varec was the one who made this suggestion, and they don't provide H2S vessels for this project. We recommend against this because FRP is a brittle material that could be damaged during media changeout, and we'd feel more comfortable with steel given the exothermal reactions that take place. Unison said they have zero installations of FRP for H2S vessels due to the same concerns listed above.	No data, vendor won't supply this material for this application.	This could be done. It is a specification change.	We recommend not including this change.	No Go	$0
134	Section 11301 - For the Digester Mixing Pumps, consider moving the VFDs out of the mixing system supplier's scope and into the project VFD supplier's scope. Doing so would streamline the costs for testing, etc., by consolidating all VFDs on the project, not just the ones in the rep's package. (Suggested by Eshelman Company)	Tom Nangle	This would take the onus of making sure the motors, VFDs and pumps are all compatible off of the digester mixing pump supplier. However, CDM Smith's review process checks to make sure these three components are compatible. CDM often waives this requirement on Design-Build jobs to save money for CCI. TO accomplish savings, this should be done for all pumps, and evaluate where it can be done for certain process equipment as well.	Need Spencer Perry's Help with this	Easier to do for pumps, as it is a spec change. There would need to be coordination with the presses and dewatering equipment to see what impacts this would have.	CDM Smith recommends making this change.	Repeat	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
135	Eliminate harmonics testing, witness testing and all non-essential testing for VFDs, etc., in the specs. This added a large cost to the project. (Suggested by Eshelman Company)	Spencer Perry	Harmonic testing can be limited to drives over 100hp. Shop testing (4 hour burn-in) can be eliminated. Field testing can be reduced to a one day trip for manufacturers rep.	$30,000	Yes, it is feasible.	Recommended.	Go	$30,000
136	Eliminate the requirement for follow-up visits within the first year from all equipment sections.	Carrie Carden	See response to Item 44 above.	$0	Yes, it is feasible.	Recommended.	Go	$0
137	Section 11224 - Consider removing the control panels from the mixer manufacturer's scope of supply. (Suggested by Philadelphia Mixer)	Carrie Carden	PMSL estimates a $35,000 reduction in their price, but most of this cost gets passed on to the integrator. We may save a little money by adding this work to the integrator's already sizeable scope.	$5,000	Yes, it should be feasible.		No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
138	Section 11224 - The specified Quill type gearbox is a robust unit that is not required for this application. Consider alternative language provided by Philadelphia Mixer.	Carrie Carden	Need to review this language carefully; some of it appears to require a gear drive designed by the mixer manufacturer and excludes commercially available gear drives. PMSL estimates that this change of language could result in a 20 percent savings.	$3,000	Yes, it should be feasible.	Recommended.	Go, Carrie will ask master spec owner about this	$0
139	Section 11370 - Multistage Centrifugal Blowers and Accessories. According to TDH Company, one company represents both of the listed blower manufacturers, so that company was able to name its price. Consider modifying the list of manufacturers to allow more competition.	Brian Karmasin	The specification lists Hoffman and Continental.					

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
140	Consider pre-negotiating or pre-selecting major equipment in order to lock in prices and reduce the amount of packaging that could happen. (Suggested by TDH Company)	Carrie Carden					Go, do our best to eliminate packaging	$0
141	BNR Basin Aerator Shaft Extension - Consider allowing third parties to provide these extensions. (Suggested by Kazmier & Associates and Philadelphia Mixer)	Brian Karmasin	The drawings call for the mixer manufacturers (Ovivo and WesTech) to provide these extensions in order to ensure unity of responsibility. If a third party provides these extensions, there is a high potential for finger-pointing.	$0	Yes, it would be feasible.	Not recommended	No Go on third party part. Go on prenegotiation of prices for the shafts and include them as pre priced bid item.	$10,000
142	Deleted - Not Used.							

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
143	Adjust the material requirements so they do not have to be the "best of the best." Noted by Judy/Smith JV. For example, much of the piping and supports have to be Type 316 SS.	Bob H.	This is more or less a repeat of other items, but the other items are specific				Repeat	$0
144	Reduce the intensity of the photography and videography (such as video-taping O&M sessions) specification. Judy/Smith JV noted there being $200,000 in scheduling alone.	Bob H.					Repeat	$0
145	Somehow reduce/adjust the amount of instrumentation needed throughout the project. Judy/Smith JV noted it seeming higher than normal for a wastewater treatment plant.	Bob H.	We don't believe the project is "over instrumented" and we don't know of anything that can be removed. This is a treatment plant, so it will have a fair amount of instrumentation.				No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
146	Allow construction of buildings via Fabcon tilt-up concrete construction in lieu of concrete column beam design (suggested by Judy/Smith JV)	Justin Boggs	Not recommended for SPB due to large rotating equipment on the upper floors. Coordination with a delegate designer could be difficult to have adequate design for vibrations. Tilt-up could be used on Digester Building. Savings shown for Digester Building only.	400k	Likely not feasible by June	Savings could be significant but building façade would not be consistent with other buildings.	No Go	$0
147	Somehow reduce the intensity of the pipe supports/hangers specification. Judy/Smith JV noted there being over $1 million in just the associated material and engineering.	Tom Nangle	See items 82 and 83 for design requirements.				Repeat	$0
148	Allow alternate material of construction for pipe supports (currently, all pipe supports are specified to be Type 316 SS).	Tom Nangle					Repeat	$0
149	Potentially take designing anchor bolts for all equipment out of the Contractor's scope.	Process Design Team	This needs to be in the contractors scope (really the equipment mfg. scope) because the forces that the bolts will see are dependent on the equipment.				No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
150	Reduce the necessity of providing at least two years' worth of lubricants for various pumps and equipment.	Carrie Carden	See response to Item No. 64. We will be reducing spare parts and lubricants to those needed for the first one to two years of operation.				Repeat	$0
151	Somehow reduce the intensity of the AIS requirements (Judy/Smith JV noted that this added 25% - 30% to their costs).	Bob H.	Can't do anything about this.				No Go	$0
152	Section 15066 - Reduce or eliminate the torque testing requirement for all flanged bolts on flanged piping.	Bob H.					No Go	$0
153	Allow Contractor to use their own equipment installation staff, instead of requiring them to go hire a true millwright.	Bob H.	Research this	This could be a significant savings if allowed.			No Go for now, but research to see if the specifications are potentially too stringent.	

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
154	Use chemical enzymes to start up the plant.	Bob H.					No Go	$0
155	Have the Owner perform the demolition early, perhaps even before the re-bid (Judy/Smith JV noted there being over $2.5 million in demolition, with hauling being the greatest expense).	Bob H.					No Go	$0
156	Leave the demolition material on-site, or re-use it for bedding.	Bob H.					No Go	$0
157	Adjust the 6-month UV testing period (during the construction sequencing) so that the asscociated bypass period is not so long.	Carrie Carden	Research this				Go, research	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
158	Somehow adjust/reduce the heat tracing and insulation requirements (Judy/Smith JV noted that this alone was over $1 million).	Bob H.	Pouliot: Defer to Carrie. There is very minimal heat tracing on the HVAC and Plumbing drawings. Heat tracing and insulation requirements in Sections 15250 and 15257 are consistent with past projects. This project does include a considerable amount of heat-traced and insulated FOG piping that could be eliminated if we delete the FOG system.				No Go	$0
159	Section 11282 Stop Logs - Change frames from stainless steel to coated carbon steel. Some savings. (Suggested by Alfa Laval/Ashbrook)	Carrie Carden	Stop logs are to be installed at the UV system effluent box and in the UV Influent Diversion Box. Making the frames coated carbon steel makes them a maintenance item. Minimal savings.	$1,000	Yes, it would be feasible.	Not recommended.	No Go	$0
160	Section 11282 Stop Logs - If the same 60" logs can be used in both the UV effluent box and the UV Influent Diversion box, there could be a big savings. (Suggested by Alfa Laval/Ashbrook)	Carrie Carden	It may be necessary to have both stop logs in place at the same time before the new UV system is placed into service. It may not be practical to have the stop log vendor provide two frames and one set of logs.	$0	Yes, it would be feasible to modify the specs and drawings.	Not recommended.	No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
161	Section 11282 Stop Logs - If the 12" logs could be changed to a larger height such as 24", this would result in fewer logs and a good savings. (Suggested by Alfa Laval/Ashbrook)	Carrie Carden	Alfa Laval/Ashbrook says their 5'x12" log weighs approximately 230 pounds, and the 5'x24" log weighs approximately 350 pounds. If the intent is for operators to install the logs with the assistance of a hoist or boom truck, then this should not be a problem. These stop logs should not be used very frequently at all, if ever.	$2,500	Yes, it would be feasible to modify the spec.	Recommended.	Go	$2,500
162	Section 11282 Stop Logs - The specs call for two service trips. Each start-up trip costs $4,800. If all stop logs could be checked at the same time, we could remove one trip at $4,800. (Suggested by Alfa Laval/Ashbrook)	Carrie Carden	The specification combines slide gates, weir gates, and stop logs. Two service trips are likely to remain necessary for the slide gates and weir gates, as they may not all be ready at the same time. However, both of the stop logs are in the same area (the UV system and Influent Diversion Box). It seems reasonable to allow the stop log vendor to combine his trips.	$4,800	Yes, it would be feasible to modify the spec.	Recommended.	Repeat	$0
163	Section 11332 - Consider eliminating the spare washer compactor screw. (Suggested by JWC Environmental)	Jon Lapsley	Minimal impact - spare part	$10,000	Easy	Remove this requirement from spec	Repeat	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
164	Section 11335 - Consider removing the knife gates and discharge chutes from the screen scope. These can be purchased locally at a savings. (Suggested by JWC Environmental)	Jon Lapsley	Minimal impact to design but risk of issues in construction - suggest we retain this for single point responsibility for system to function properly between screen, sluice, chute, and compactors	$10,000	Easy	Not recommended	No Go	$0
165	Sections 11332 & 11335 - Consider a single common control panel instead of five individual panels. (Suggested by JWC Environmental)	Jon Lapsley	Moderate impact (spec change, P&ID change and electrical drawings). Would not suggest 1 panel - at a minimum 2 panels (one for screens and one for compactors). Results in single point of failure for equipment if panel goes out. Consider stocking spare PLC?	Reduce from 5 to 2 panels = ~$30,000	Easy	Recommended if operations is acceptable	Repeat	$0
166	Section 11363 - Specified spares list is extensive including PLC hardware. We recommend spares to include only a complete set of fuses for each machine. (Suggested by Alfa Laval)	Carrie Carden	I think we will need more than just spare fuses for the centrifuges - the City will need spare belts, lubricants, etc., at a minimum.	$0	Yes, it would be feasible.	Not recommended.	Repeat	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
167	Section 11363 - Main power disconnect is specified with a flanged operator. A higher cost flanged style enclosure and disconnect operator is required to meet this. We recommend the Connect Design disconnect which includes a lower cost, through-the-door rotary operator. (Suggested by Alfa Laval)	Spencer Perry	This is the motor starter panel for the centrifuges. There are 3 panels. The cost to change to a rotary operator for the 200A Circuit Breaker would be acceptable as long as it is recommended by the manufacturer.	$3,000	Yes, it would be feasible.	Recommended.	Go	$3,000
168	Section 11363 - Specifies CompactLogix PLC CPU model 1769-L33ERM. We recommend the Connect Design, which includes the lower cost CompactLogix 5069-L310ER CPU. (Suggested by Alfa Laval)	Scott W.					No Go on L310, but Go on L33ERM to L33ER	$20,000

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
169	Section 11363 - Specifies a fully managed Ethernet switch, fiber optic equipment, patch panels and cords per Section 13321. However, Drawing E-27 depicts a CAT6 Ethernet cable connection. The Connect Design includes a lower cost unmanaged Ethernet switch. If a fiber connection is not required, we recommend providing an unmanaged Ethernet switch for plant communications. (Suggested by Alfa Laval)	Scott W.					Go on elimination of fiber between in building panels. Go on changing managed switch to unmanaged switch	$2,000

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
170	Section 11363 - Specifies witnessed shop testing for centrifuge and controls. This is additional labor and materials cost for three machines. We recommend customer consider independent unwitnessed factory tests for centrifuge and controls systems. (Suggested by Alfa Laval)	Carrie Carden	See response to Item No. 69.	$0				
171	Section 11363 - Alfa Laval requests that the model nomenclature be changed from ALDEC G3-95 to ALDEC. The ALDEC design is similar to the product proposed by Andritz on bid day.	Carrie Carden	Have requested information on Alfa Laval's recommended ALDEC model and will evaluate.		Assuming prompt receipt of design information, it would be feasible.		No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
172	13240 – Delete requirement for replacement media for Hydrogen Sulfides and Siloxane tanks. Replacement valve for each type and size valve.	Tom Nangle	We could eliminate replacement media, with the Town ordering it themselves. The media probably costs about $50,000, so the delta on the GC's markup will be around $10,000. Recommend keeping spare valves for the system, given the critical nature. There is a possibility that replcaement media will be needed prior to the Owner taking over control of the gas treatment system; it would be more convenient if the Contractor handled the first media changeout.	About $10,000	Spec change, easy to make in available time.		No Go on media change eliminatio n, Repeat on valve	$0
173	Evaluate using steel tanks for WAS and Digester Tanks	Tom Nangle					Tenative No Go	
174	Can Digester coatings and insulation be reduced?	Tom Nangle					Tentative No Go, except look at depth to which coatings go	

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
175	Review requirements with the two listed presetressed tank manufacturers	Tom Nangle	There were enough questions during bidding that this should be done to make sure we have good competition next time around. Should send specifications to vendors and then discuss.	Should have value, but difficult to quantify since it is a competion thing.	Feasible	Recommend doing this.	Go	$0
176	Revise the coating spec to allow galvanized for the pre-engineered weather canopy (13120)	Tom Nangle					No Go, but discuss amount CDM experts to see if can be lessened.	$0
177	If City has their own boom truck or RT crane, they could eliminate (7) davit cranes.	Carrie Carden	The specified davit cranes are for the digesters and the EQ tank. We can check with the City, but I'm not sure their equipment will have the needed reach.				No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
178	The overhead crane and monorail quotes varied wildly. Several manufacturers stated that the specifications were confusing, contained significant overkill, and some of the listed manufacturers were no longer in business. Example: Motor-operated hook swivels specified are non-standard for anything less than a 50T crane, but the specifications required for them on small load cranes.	Carrie Carden	We will review the need for motor operated hooks and check into the listed manufacturers.	$10,000	Yes, it should be feasible to do this research and modify the spec.	Recommended.	Go - Clarification	10000

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
179	Review HVAC requirements. Per subcontractor, specification was very stringent and AIS requirement significantly increased pricing. Similar Points on sole sourced equipment.	Paul Pouliot	Refer to the response to item 89 for the stringent specifications and sole sourced equipment. AIS requirements to be addressed by Zack.	Refer to the response to Item 89.	Refer to the response to Item 89.	Refer to the response to Item 89.	Refer to the response to Item 89.	
180	Review fire sprinkler system, use one fire system for the whole building in lieu of one for each floor. Code requirement?	Paul Pouliot	Refer to the response to item 130	Refer to the response to item 130	Refer to the response to item 130	Refer to the response to item 130	Refer to the response to item 130	
181	Change stainless steel odor control duct to FRP.	Paul Pouliot and Bruce Singleton	This does not make sense. It is our experience that single wall stainless steel ductwork is signicantly cheaper than FRP. Refer to Item 115.	Refer to the response to item 115	Refer to the response to item 115	Refer to the response to item 115	Refer to the response to item 115	

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
182	15140: For ease of constructability switch the HSS pipe supports on the outside of the digester building from HSS to W8 x 31 or something similar. There's some cost savings but connecting the pipe support clamps/U-bolts will be a lot easier as well.	Tom Nangle	If there is a cost savings in materials by changing the shape and that also makes it easier to connect clamps/bolts, then that has to reduce the installation labor cost as well.				Go, to be reviewed and implemented if acceptable to disciplines	**$10,000**
183	15140: Change Stainless Steel pipe supports to galvanized	Tom Nangle					Go, may be a few places where we don't want to change. Also look at aluminum for lighter stuff	$100,000

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
184	15500: Allow other manufacturers (narrow spec)	Paul Pouliot	Refer to the response to item 89.	Refer to the response to item 89.	Refer to the response to item 89.	Refer to the response to item 89.	Refer to the response to item 89.	$0
185	I&C - Minimize spare parts requirements.	Carrie Carden	We can eliminate some or conceivably all spares. PLC spares for Collection & Distribution were left in 13311 (2.11.C) and these can definitely be removed.	$20,000	Yes, it would be feasible.	Recommended at least in part.	Global Go, Repeat	$0
186	I&C - Shorten durations of startup/training requirements and commissioning/functional testing.	Scott W.	Startup and Testing: In general, the testing is indispensable. The SAT (a.ka. "30-day test") could be shortened or deleted, but the effort from PCSS is minimal. Testing: The City is getting brand new-to-them PLCs and HMI, so we cannot trim much. Alll training is defined as by PCSS not by manufacturers, so it is mostly labor/travel.	$10,000	Yes, it would be feasible.	Not recommended.	No Go	$0
187	I&C - Allow alternate instrumentation equipment to be supplied.	Scott W.	Multiple manufacturers and equals are permitted on most items already. Where they are not, there are reasons.	$0	Yes, it would be feasible.	Not recommended.	Go, Do what we can to identify other equals	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
188	I&C - Reduce warranty period, specifically for Fiber Optic Cabling (20 Yrs).	Scott W.	Corning standard warranty is one year. Practically speaking, once properly installed and not disturbed, fiber optic cable can last indefinitely, and warranty is not a priority. Warranties on other items would need to be evaluated case-by-case.	$250,000	Yes, it would be feasible.	Recommended.	Go, but check on actual extra cost of fiber optic warranty. This was checked and won't net much. Leave as it is.	$0
189	I&C - Combine PLCs for smaller areas.	Scott W.	While possible, this would require extensive modification of wire and conduit across the plant, which would more than offset savings in PLC and panel hardware.	$0	No, it would not be feasible.	Not recommended.	No Go	$0
190	Minimize spare parts re	Carrie Carden	We can eliminate some or most spares in Division 16, with the understanding that the owner will stock what is necessary and purchase others as needed. This number includes the savings for item 191.	$150,000	Yes, it would be feasible.	Recommended.	Go, Repeat $75K now part of Global item	

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
191	16345: Delete spare part cash allowance items specific to DIV 16 (16345-1.08, $10,000 in addition to list of spare parts).	Spencer Perry	With owner approval, we can delete the $10k allowance, or the spare parts list or both and clarify that the list is for each size of VFD. Elimate spare parts and establish an allowance overall for the project. City can shop during construction/startup on allowance. Require each vendor to provide a suggested list.	$12,000	Yes, it would be feasible.	Recommended.	Go, Repeat $75K now part of Global item.	$0
192	Delete requirement to include EXTRA electrical conduit in base bid (16000 1.01 – S).	Spencer Perry	This requirement can be deleted or included in a different allowance.	$35,000	Yes, it would be feasible.	Recommended.	Go - Eliminate fund	$35,000
193	Can we minimize or relocate panels, instruments, motors, fitting, etc. out of explosion proof areas?	Spencer Perry	This has been accomplished to the extent possible. There may be some locations that can be revised to reduce the electrical classification of equipment enclosures. This will require further investigation.	$50,000	Yes, it would be feasible.	Recommended as long as there are no negative impacts.	No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
194	Allow PVC conduit within concrete slabs and below grade for I&C wiring. As it is now, the specs call for aluminum with bituminous coating in concrete and below grade. (16110 3.01 and 3.04).	Spencer Perry	This is a duplicate of Item No.9.				Duplicate	$0
195	Reduce warranty periods to 1 Yr – all of DIV 16 – there are several sections that have 2-5 yr warranties specified.	Spencer Perry	This will need to be investigated on a case by case basis, but we can likely reduce the warranty period to 1 year. This includes Gate Access Control System, RVSS, VFDs, and Switchgear.	$30,000	Yes, it would be feasible.	Recommended.	Go in some form. Work with City	$0
196	DWG ED-4: Eliminate sump pumps in every electrical box.	Spencer Perry	This is a duplicate of Item No.18.				0	$0
197	Delete concrete pad detail for conduit floor penetrations (16110 3.04 and detail on ED-2).	Spencer Perry	This is the 'housekeeping pad' requirement for free standing panels.	< $10,000	Yes, it would be feasible.	Not Recommended.	No Go	$0
198	Open up competition on process equipment by not sole-sourcing equipment	Carrie Carden					Repeat	$0

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199	Size of "trade" packages eliminates competition due to available resources and financial capabilities including bonding. Split the job into two separate projects.	Bob H.	Splitting into two separate project increase overhead, but will create more competition at all levels. My gut says that there is probably $10 million in extra cost between the electrical and building mechanical (just a guess). But, the increased overhead and engineering would probably reduce this savings by a couple million.	$7 million	Can't be done in the current schedule.	Recommend doing if the schedule can be increased.	To be revisited	
200	Re-advertise the project as a CMAR project.	Bob H.	To be discussed.				No Go	$0
201	Don't touch the $4M Owner Contingency. At $152M, a 2% contingency is probably "low" and probably enough if it were $100M.	Bob H.	Agree with leaving the contingency alone. No change is necessary.	$0	No change necessary	No change necessary	Agree	$0
202	Simplify the biosolids building into a more straightforward building, possibly removing the lab & control.	Justin Boggs			Not feasible by June but revisions to the SPB layout could be significant (multi-million)		Repeat	$0

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203	Confirm with the Department of Labor what the approrpaite wage determinations are.	Zack Daniel	Already addressed in another item.				Repeat	$0
204	Delete the requirement for the GC to purchase the builder's risk insurance. No reason the City couldn't provide this and still have the same level of protection. Delete Owner's Protective Policy requirement.	Bob H.	Need opinion from Shauna				Send question to Shauna. Done, and Shauna recommends No Go	$0
205	Delete the Owner's Protective Policy requirement.	Bob H.					Send question to Shauna. Done, and Shauna recommends No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
206	Remove requirements for added schedule times, such as the float added in Section 01014 1.04.04 for BNR repairs. The Contractor could deal with the time extension as needed.	Bob H.	The schedule items are necessary. Each of the items where we require float in the schedule have real time impacts that need to be accounted for.	$0	Changing isn't an option	No change	No Go	
207	Delete the requirement for the demolition of the ATAD System to be a requirement of Substantial Completion, rather than Final Completion (confirmed in Addendum).	Bob H.	I'm not sure what they are talkin about here. I cannot find in our specifications where we mention the timing of the demolition of the ATAD reactors. I think they must confusing it with something else.	$0	If there is a change it would be no problem to make	Talk to Garney and figure out what this is and take action if it makes sense.	Research	
208	Shorten the durations of start-up, training, comissioning, and functional testing.	Carrie Carden					Repeat	$0
209	Convert the FOG to biofuel that could be used for plant vehicles.	Bob H.	I judge this to be outside of the scope of items we want to consider in this exercise.	$0	Not feasible	Not recommended	No Go	$0

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210	Can the Solids Facility, or portions thereof, be relocated to inside the fence line of the existing facility on the West corner? Minimize piping, ductbanks, earthwork, etc…	Bob H.	Their thought was to reduce cost by shortening the connecting pipes, duct banks, cabling, etc. I think any savings would be more than offset by engineering cost. Plus moving it closer would take the currently unconstrained biosolids schedue and add constraints making it more expensive to build.	$0	Not feasible in the time period	Not recommended	Revisit if schedule is extended	
211	Remove the means and methods requiprement for bypass pumping for the construction of the BNRs (Section 01014 1.05.D.4)	Bob H.	This is responded to in another item				Repeat	$0
212	SPEC 01014: Eliminate requirement for ABW 1 to be in service for early start of new UV (01014-1.05.G.4 in Addenda #10).	Bob H.	I'm not sure I understand their logic. ABW filters 2 and 3 must be demolished in order to build the new UV system which is in their footprint. The patching and repiping of ABW 1 almost has to happen concurrently with the UV construction.	$0	If there is a change it would be no problem to make	Talk to Garney to get a better understanding of their concern and take action if it makes sense.	No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
213	Delete requirement for contractor to pay for temp power throughout plant. Requires temporary drops for bypass pumping, temporary heating, etc……use existing plant power.	Bob H.	The problem is that we don't know whether the existing electrical system can meet the temporary requirements at each location. So, if we changed the specification to say they can use the existing system and it isn't adequate we will probably have a claim. I suspect that temporary drops will be required to meet any bypass pumping requirements and I'm not sure it makes sense for the City to get involved in that.	Potential Liability	Not a problem, but don't recommend doing it.	Recommend against	No Go	$0
214	Review shutdowns/bypassing with plant personnel to reduce bypass pumping cost. Example: What options are there for schedule and bypassing of the Effluent Flow Metering Box.	Bob H.	Their intent was to talk to the plant staff prior to bidding to get them to bless alternate plans. This would get interesting because we would need to open this option up to all contractors. If it happens priior to bidding, then how would you identify all interested contractors? In addition, I would caution against allowing any plan to be formulated without both the engineer and operators involvment. A process like this would have to get very specific to protect the City and would burn lots of time and money. I'm not sure it would be a net positive.	$0	I don't think this is feasible.	Recommend against	No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
215	Eliminate or reduce the detail in the photography specification, Section 01322.	Bob H.	This is responded to in another item				Repeat	$0
216	Reduce the requirement for video taping of training.	Carrie Carden	This is video taping associated with training. Reducing the requirements could result in poor quality or unusable training tapes.		Feasible, but not recommended	Not recommened	No Go	$0
217	Section 02576: Change the asphalt patching detail from 10.5" of asphalt to a less amount (2.5" - 5.0")	Tim Haggard	I don't find a detail that shows 10.5" asphalt patching or close. We'll need to talk to them on this.		Not a problem to get done in time period	Talk to Garney and figure out what this is and take action if it makes sense.	No Go, but investigate to verify this is really a non-existent issue	$0
218	Leave the construction stone access road in place after completion.	Tim Haggard	24' W X 12" deep X 1500' long = 1333 CY to be removed and hauled off plus grading and restoration. Might be good access to north solar panels.	$50,000	Not a problem to get done in time period	No strong opinion. Depends on whether City is OK with it staying.	Go, repeat	$0
219	Allow permanent stockpiling of clean excess fill onsite.	Tim Haggard	See analysis under separate item.				Go, see other items	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
220	Allow for the use of on-site crushed concrete from the demolition of structures to be used as either road base or stone under structures.	Tim Haggard	Brian indicated that there is a long gravel access road to one of the remote pump stations that maybe could use the crushed concrete. However, it would have to be hauled there. It would probably be less expensive to haul off uncrushed concrete to disposal. However, we might be able to make the road to the digesters gravel (crushed concrete) rather than paved. Might be other uses as well. This would be an extremely noisy operation. The guess at savings has no firm basis at this time.	$50,000	Not a problem to get done in time period	Recommend doing it if there are enough reaonable uses and if the noise can be tolerated.	No Go, Repeat	$0
221	Section 02213: Change the rock and over excavation to a unit price allowance.	Tim Haggard	This would eliminate some contractor risk and conservatism, but we would end up being conservative on our calculations to establish the unit price item quantity. So, the number would stay the same or increase. In addition, monitoring of this would be a chore.	$0	Not a problem to get done in time period	Recommend against	No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
222	Section 02050: Demolish structure 3' below grade only where they are not obstructing a new structure.	Bob H.	There is another item that suggests eliminating demolition of structures that aren't in the way of new improvements. If we decide to do that item, then this item becomes moot. Leaving structure bottoms in place creates obstructions for future development, but it isn't the end of the world.	$75,000	Not a problem to get done in time period	No stong opinion	No Go	$0
223	Owner pay for vibration monitoring (with testing allowance)	Bob H.	I suggest not getting into the middle of the contractors testing.	<$10,000	Not a problem, but don't recommend doing it.	Recommend against	No Go	$0
224	Reduce the amount of crush stone under structures.	Justin Boggs	Could be converted to structural fill instead of crushed stone. Crushed stone provide better drainage however structural fill is acceptable per the geotech report.	200k	Feasible	Use structural fill instead of stone	No Go	$0
225	Delete the geotextile fabric under structures.	Justin Boggs	Required where crushed stone is used beneath the structures.	Incl w/ Item 224	Feasible		No Go	$0
226	Drawing C-35: Remove the requirement for demolishing the parking lot at the west end of the plant.	Tim Haggard	The parking lot is about 330 feet by 270 feet. Assuming that 12 inches would have to be scraped up, that would be about 3300 CY. Plus regrading and revegetation.	$100,000	Not a problem to get done in time period	Recommend doing it.	Go	$100,000

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227	Review the ESC Plan; the erosion plan was a large number. Is erosion matting necessary?	Tim Haggard					Go, the plan will be reviewed	$0
228	Remove the stone ground cover around the solids area.	Tim Haggard					No Go, probably not worth messing with	$0
229	Eliminate requirement to demo SWW JBOX or reroute the piping (Dwg. C-20) If the box is in bad shape structurally, would it be cheaper to rehab box or 'beef it up' rather than install all that new pipe.	Tim Haggard	I think this box was recommended for demolition because the hydraulic grade line in the box is going to go higher than is comfortable when we start putting extra flow through the box.	$10,000	Not a problem, but don't recommend doing it.	Recommend against	No Go	$0
230	Several demotion details require chipping out conrete sections to preserve existing rebar. Is it possible to saw cut and drill and epoxy dowels?	Justin Boggs	The particular members being modified do not have sufficient thickness to provide adequate capacity for drilled and epoxy reinforcement. Selective demolition is required.				No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
231	Minimize the asphalt paving. Install gravel drives in the solids area, with a future plan for paving.	Tim Haggard	We could potentially change the road that loops around the back of the digester building to the digesters to gravel.				Go, this will be investigated	$15,000
232	Have the foundation of the solids building be on the same level and continuous rather than chopped into small pieces at different elevations.	Justin Boggs	Solids Building is built on varying fill however, is possible to combine some footings and revise some elevations.	25k	Feasible	Revise Footings only if other changes are made to the SPB	Go	$25,000
233	Section 03180: Delete these coating requirements entirely. Allow Contractor to incorporate admixture.	Justin Boggs	CDM Smith does not have experience with this product and is wary of long-term performance. Removal of coatings from the Headworks, WAS Storage and Digesters Tanks could subject the concrete surfaces to attack from H2S gases and cause short-term deterioration of the concrete. CDM Smith practice is to coat covered structrures at the head of the plant, since H2S gases are trapped under the covers. However, the existing Headworks Structure is not coated and concrete is in good condition. New Headworks Stucture is also odor controlled, mitigating the H2S trapped above the waterline.	200k (Headworks) 500k (Digesters and WAS Storage - Prestressed Tanks)	Feasible	Remove epoxy coating from Headworks structure. Further investigate removal of coatings from Prestressed Tanks. Slight changes to concrete mix design to reduce porosity.	Go - Investigate experience of admixture with precast and cast in place. City is comfortable with headworks regardless.	$200,000

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234	Section 03350: Delete the floor hardener.	Justin Boggs	Floor hardener provides a durable, sealed concrete surface to floors	100k	Feasible	Not recommended	No Go	$0
235	Section 03350: Delete the Xypex coating.	Justin Boggs	Xypex coating will prevent moisture from entering the habitable spaces of the Headworks structure.	100k	Feasible	Not recommended	No Go	$0
236	Allow the digester building and the electrical building be pre-cast concrete or pre-engineered metal.	Justin Boggs and Michael Alford	Pre-engineered metal for Digester Building would likely still require brick veneer façade to coodinate with other buildings. Savings shown consider metal building for digester. Switching the electrical building to precast has little discipline impact.	125k (Electrical) 250k (Digester)	Feasible	Recommended for Electrical Building	Go on electrical, but work out actual details. No go on digester	$125,000
237	Section 04200: Details call for rigid insulation in the cavity between CMU and brick in addition to every core (not filled with grout) be filled with a rigid foam insert. Delete the foam core insulation. Spray-applied foam core insulation is more cost effective if cores must be foam-fill insulated.	Michael Alford	Interior walls separating process andn process remove foam inserts. Walls between conditioned and process keep foam inserts. Also allow spray foam core insulation where we keep inserts.	$1/SF			Go	$5,000

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
238	Section 04200: Delete 3" rigid insulation between brick and block.	Michael Alford					No Go	$0
239	Section 04200: Details call for "mortar mat" to be constructed in cavity between rigid insulation and brick veneer. Delete this requirement. (Note: the specs didn't call for this, but shown in detail)	Michael Alford	Full height mortar mat can be deleted and only use a weep hole protection system at the base of the wall. RPR and field inspection team will need to closely monitor the masonry construction to make sure that mortar is not fililng air space.	$30,000	Feasible	Recommended	Go	$30,000
240	Switch the steel handrail at the pan filled stairs in the Solids Processing Building to Aluminum handrail.	Justin Boggs and Michael Alford	None	25k	Feasible	Easily achieved, revise	Go	$25,000

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
241	Section 05210: Upon unit price analysis, it looks like precast roofing systems are about $20/sf cheaper than steel joist w/corrugated decking and modified SBS roofing. Consider using precast roofing system for Digester Building.	Justin Boggs	Roof system is less expensive, however, will require concrete tie-beams at bearing elevation, reducing savings.	100k	Feasible	Revise only if other changes are made to the Digester Building	Go	$100,000
242	Secton 07115: Possibly delete the below-grade waterproofing membrane. Unless it's a finished space on the interior side of the way, this serves no purpose.	Justin Boggs and Michael Alford	For the electrical building, moisture through the slab could be an issue with the electrical gear. Both the digester building and solids building have electrical rooms on the first floor where mositure through the slab could be an issue with the electircal gear.	$20,000	Feasible	Not recommended due to the sensitive nature of the electircal equipment on the first floor of all buildngs.	Go except for occupiable spaces, WAS tank and digesters	$5,000
243	Section 07210: Delete below-grade freeze protection. This is completely unnecessary.	Michael Alford	Perimeter is not required per the energy conversation code and can be deleted from the project.	$30,000	Feasible	Not a code requirement so it can be reomved.	To be researched	

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
244	Section 07552: A single-ply membrane roof is significantly more cost effective than an SBS modified built-up roof, which is an older construction method and limits subcontractors that can quote the project. Potential 40% savings on roofing by allowing a single-ply membrane roof.	Michael Alford	Both roof systems are good roof systems if designed, installed and maintaned propoerly. Built up roofs tend to be easier to modify in the future. Single ply is an accepatable alternative Notes from meeting with City - Look at what we would recommend and compare against SBS to come up with a cost savings to run by the City. Do the single ply as a deduct alternate on the bid form.			Recommend to include Single Ply roofing system as a deductive alternate	Go	$35,000
245	Section 08111: Look at alternative materials, such as all steel painted doors & frames, or FRP.	Michael Alford	Painted Steel doors will require continual painting and most likely still will not hold up to the corrosive nature of these buildings. The majority of the doors on the project are FRP.			Recommended changing the few aluminum personnel doors to FRP	No Go	$0
246	Section 08330: Eliminate fire shutters (are they needed?)	Michael Alford	There is only one fire shutter on the project and it provides protection for a window in a fire rated wall so that the centrifuge panel room with electircal equipment does not need to be sprinklered.			Not recommended	No Go	$0
247	Section 08331: Delete motor operators and control stations.	Michael Alford	This would be an operational issue to be reivewed by the owner. It would be quite an effort to open the roll-up doors manually	$2000/door		Not Recommended	No Go	$0

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248	Section 08710: The hardware finishes on the closures et. al. were expensive. Look in to cheapter, alternative finish options.	Michael Alford	This is a corrosive industrial enviroment and the finishes specificed are in an effort to make building systems last.			Not Recommended	No Go	$0
249	Section 09300: Delete tile and go with a finished concrete surface or a type of laminate.	Michael Alford	Laminate floor material would not hold up well to the solids building environment. Laminate requires maintenance to seal the floor in the future. Tile is a durable product that does not requrie routine maintenance.	$2,000		Not Recommended	No Go	$0
250	Section 09671: Product specified is LEED certified. Allow use of a non-LEED certified coating that attains the same surface coating.	Michael Alford	There are no requirements in the specificaiton for LEED. The product specificied may meet low VOC requirements and recycled content but is not requried. We will reivew the material specificaiton and make sure the requriements are clear.		Feasible	Material Product to be reviewed and specificaion updated as needed	No Go, but check specs	$0
251	Delete or delay processes such as CHP and THP.	Carrie Carden						

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252	Minimize spare parts. Excessive spare parts in most specification sections (for examlple, Section 11254 requires 2 spare pumps).	Carrie Carden	Through group discussion with City we agreed to eliminate spare parts in the specifications and instead require the manufacturers to supply a spare parts list with pricing, lead time, etc. A general project-wide spare parts allowance will be established and the City will pick and choose what they want during construction.				Go	$250,000
253	Delete the requirement to provide 1- or 2-year supply of oils & lubricants. Allow the Owner to work with a local lubricant supplier to review overlapping usage and keep lubricants in stock.	Carrie Carden					Repeat	$0
254	Minimize factory witness testing requirements.	Carrie Carden					Repeat	$0
255	Eliminate 5 year warranties.	Carrie Carden					Repeat	$0

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256	Have all VFDs furnished by Allen-Bradley, not be by each individual equipment manufacturer, or further define A-B requirements. Due to distribution of VFDs amongst multiple equipment packages and A-B being unable to clarify which equipment manufacturers would get what quantity of VFDs, spare parts (16370 – 1.06, $20,000 in addition to a full 5-year supply of spare parts), manufacturer services, and testing get duplicated.	Spencer Perry					-	$0

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257	Allow the City of Franklin to self-perform UV testing or suspended solids testing for BNRs with their own testing facilities.	Carrie Carden					No Go	$0
258	Combine the control panels for adjacent pieces of equipment. Most specifications require one control panel for each piece of equipment (11224, 11242, 11315, 11325, 11333, 11335).	Scott W.					No Go	$0
259	Section 01066: Delete the requirement that chemicals be purchased by contractor. The Owner could supply these through existing contracts and/or as-needed new long-term contracts that should allow negotiation of better pricing.	Carrie Carden					Go on all chems except polymer and boiler chemicals. Contrator responsible foc cooord with City on delivery	$10,000

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260	Section 11265: Remove the requirement that the 6-month trial period for the new UV System be completed prior to demolition of existing UV. Delete the requirement that the Routine Effluent Quality 12-month test period be completed prior to Final Completion.	Carrie Carden	Group thoughts - Keep 6 month trial period, but allow demolition after 30 days. Eliminate demolition of old UV as part of substantial completion. Go back and understand the 6 and 12 month period. Don't make final completion of 12 months a requirement of final completion, but make 12 months end within contractor warranty period.				Go, with cavaets to the left	$400,000
261	Section 11363: Delete the requirement for rebuild of centrifuges and service contract.	Carrie Carden					Go, already eliminated in an addendum	$0

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262	Section 11344: Delete the requirement for media replacement after one year.	Bruce Singleton	It appears that the specification section referenced by the contractor is incorrect. They may have been referrring to Section 13240, Digester gas treatment system, which requires that the vendor provide and perform two media replacements during a two year period along with system inspections. We can look at this to see if elimination of these services and media can be done and still result in a reasonable solution for the City.				Go, evauate as indicated in the assement of impacts notes to the left	$0
263	Review tank sizes and quantities (EQ, Digesters, chemicals).	Bob H.	Digesters and chemicals tank sizes won't change. EQ tank could change, but only if City is willing to accept more frequent collection system overflows.	$0			No Go	$0
264	For bolted steel tanks: Allow pre-stressed tank for biosolids storage.	Carrie Carden					No Go	$0
265	For bolted steels tanks: Allow additional manufacturers. Products ended up being sole-sourced.	Carrie Carden					Repeat	$0

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266	Section 14240: Use "industrial type" finishes inside the elevator car.	Michael Alford	Elevator Finished will be reviewed to make sure they are industrial in nature.		Feasible	Elevator Finishes to be reviewed and specificaion updated as needed	No Go, but check specs	$0
267	Section 15072: Use cement lined ductile iron for all pipe downstream of the clarifiers.	Bob H.					Repeat	$0
268	Section 15072: Allow MJ ductile iron fittings with megalugs for pipe diameters 18" through 54".	Bob H.					No Go	$0
269	Section 15072: Use Vic DIP for all exposed piping, eliminating flanges and bolt kits.	Bob H.					Go, but get expert opinions and allow for both flages and vics. Don't allow groving in field.	$0
270	Section 15072: Change the glass lined ductile iron to epoxy lined.	Bob H.					No Go	$0

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Evaluation and Screening of Cost Reduction Ideas

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
271	Eliminate the full depth stone backfill for pipe under asphalt. Reroute large pipe (54" RWW-DI at BNRs) out from under roadway. This could save stone and re-paving.	Tim Haggard	Under roads needs to be full depth. Look to see if we can route from under roadway.				Go, no to eliminatio nof full depth but check on movement of pipes	$0
272	Eliminate asphalt binder patch where the Contractor will cut through existing pavement.	Tim Haggard					No go	$0
273	Install 48" BNRE into the side of the new box, allowing the line to be raised. Would minimize bypass and concrete work. Option: Run a second smaller line in lieu of complete replacement with new line.	Bob H.	My gut feeling is that this would unbalance flow, but we need to evaluate this one more.				No Go	$0

Attachment A

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
274	Eliminate exterior coating or change to standard exterior coating for manholes and structures.	Tim Haggard					No Go	$0
275	Change all 316SS on the job to 304SS.	Tom Nangle					Go, we will investigate and determine if there are any places where 304 will do.	$0
276	Eliminate the requirement for full restraint on gravity lines. Use restraint chart or only restrain fittings, not straight line pipe.	Bob H.	The number of restraints can be reduced.	Don't know	Not a problem	Recommend doing it.	Go	**$30,000**

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
277	Look for an alternate waterline at Mack Hatcher to tie in to.	Bob H.	I recall that our modelers looked at various places to connect and decided on the selected location, so that analysis was already done. I suspect this is the current tie in location is the reasonable option. In addition, more surveying, geotechnical and engineering would be required and could cost more than the savings. Not one.	$0	Not feasible in the time period	Recommend against	No Go	$0
278	Confirm AIS Waiver for flange bolts & nuts, if still available.	Bob H.					No Go	$0
279	Section 15066: Fabricated steel pipe flanges specified do not meet AIS requirements. Possible solution is to change to Victaulic or Depend-O-Lok couplings.	Bob H.					Go, Check specs and modify as necessary	$0
280	Look into an alternative option for the suspended solids measuring devices. Right now it is sole-sourced for Valmat.	Tom Nangle and Scott W.					Repeat, Scott to look at with Tom	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
281	Look into alternative options for the digester gas analyzers. Do they have to have explosion-proof housing?	Tom Nangle and Scott W.					Repeat on first part. Go on second part - recheck locations	$0
282	Remove the requirement for spare parts for the collection & distribution system.	Scott W.	The collection system I&C was removed from this project. This line was inadvertantly left in.	$ 10,000.00			Go, this is separate from global item because it was included in error.	$10,000
283	Use 36 Compact Logics on just PLCs 11 & 12, and 33 on all of the others.	Scott W.		35000			Go, already our intent - clarify	$35,000
284	Remove the requirement for motion controls on the PLCs	Scott W.					repeat	$0
285	Reduce quantities of spare parts on field instruments.	Scott W.		$ 8,000.00			repeat	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
286	Bar screens: Allow for headworks standard warranty time of 1-year (Headworks International Inc.) (Section 11335)	Jon Lapsley	Ok with me, I think this is an overarching comment. I am ok reducing to 1 or 3 years instead of 5.	$ 20,000.00			Go, change to 3 years	$15,000
287	Bar screens: Reduce screenfield height to 8" above the maximum water depth as this is our standard design. The spec calls for the screenfield to extend the entire channel depth of 8' while having a maximum water depth of only 3.58' (Headworks International Inc.) (Section 11335)	Jon Lapsley	Could be done but cost savings would be fairly small and extra height gives us cushion on the HGL. I don't recommend this one.			Do not recommend	No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
288	Bar screens: Minimize spares. Headworks recommends the following minimum spares per screen: one (1) set of wiper arm wear pads (Headworks International Inc.) (Section 11335)	Jon Lapsley	Don't agree with not having many of these spare parts, we could reduce some slightly but not to their minimum in my opinion. $10K possible with thoughtful reduction in spares.	$ 10,000.00			Repeat	$0
289	Washer/Compactors: Remove paint filter testing requirement. (Section 11335)	Jon Lapsley	Minimal savings and may be a requirement for landfill. Not recommended.			Do not recommend		
290	Washer/Compactors: Minimize spares. Headworks recommends the following minimum spares per washer/compactor: one (1) brush and one (1) set of wear bars (Headworks International Inc.) (Section 11335)	Jon Lapsley	Can reduce spare parts some $15K possible	$ 15,000.00			Repeat	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
291	Sluice Trough: Allow for alternate knife gate valves as requiring 316SS roughly quadruples the price. See attachments for recommended alternate (Headworks International Inc.) (Section 11335)	Jon Lapsley	I would be OK with this, we can spec the knife gate valve directly in 11332 and leave the Div 15 spec as is. Maybe save $20K to go to this versus 316 SST.	$ 20,000.00				
292	Remove the following control requirements: Operating narrative Process control strategy Factory & functional demonstration testing procedure (Headworks International Inc.) (Section 11335)	Jon Lapsley	These are important, no			Do not recommend	No Go	$0
293	Controls: Allow for 304SS panel enclosure (Headworks International Inc.) (Section 11335)	Jon Lapsley	Corrosion resistance concern, probably an overarching discussion here and could make this change with Owner buy in. Maybe $5-$10K.	$ 5,000.00			No Go, but check on value across the site and then revisit	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
294	Controls: Allow for ABB ACS550 Series VFD as this is the Headworks standard (Headworks International Inc.) (Section 11335)	Jon Lapsley	Are we standardizing on entire project – if so then No				No Go	$0
295	Controls: Remove UPS and Bypass requirement (Headworks International Inc.) (Section 11335)	Jon Lapsley	No need UPS			Do not recommend	No Go	$0
296	Controls: Remove phase monitor as the VFD will detect and fault on phase loss/imbalance (Headworks International Inc.) (Section 11335)	Spencer Perry	The phase monitors are a small cost item, approximately $100 each. The phase monitors protect the entire control panel where the VFD will only protect the motor. Phase monitors are industry standard on 3-phase control panels.	$ 300.00	Feasible to incorporate the change in the time frame	Not recommended	No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
297	Controls: Lower short circuit current rating to 18KAIC (Headworks International Inc.) (Section 11335)	Spencer Perry	This refers to the main circuit breaker of each control panel. This is a very small cost item, approximately $30 difference between 65kaic and 18kaic. 65kaic is a standard for circuit breakers used in industrial installations. The rating may be reduced based on the final short circuit study recommendations, but 65k is a very standard rating.	$ 90.00	Feasible to incorporate the change in the time frame	Not recommended	No Go	$0
298	Controls: Allow for standard warranty time of 1-year (Headworks International Inc.) (Section 11335)	Jon Lapsley	OK				Repeat	$0
299	Controls: Clarify if Bar Screen Manufacturer or PCSS are to provide float switch and level transducers (Headworks International Inc.) (Section 11335)	Jon Lapsley	By screen manf – this is clear in 11335.				No Go	$0

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Item No.	Description	Lead Staff Member	Assessment of Impacts	Guess at Savings	Feasibility of Making Change in Available Time	CDM Smith Recommendation	Go or No Go?	Guess at Value
300	Use steel framed building instead of concrete frame building for Solids Processing Building	Justin Boggs	Steel framing would be significantly cheaper than concrete frame, however connection detailing for Seismic Deisgn Category D will limit the savings. All steel surfaces would require epxy coating and require more future maintenance that concrete. Changes would effect every discipline.	$ 1,500,000.00	Not feasible by June	If given additional time, and if other changes are made to the SPB, consider.	No Go	$0
301	Have City do the water main	Tim Haggard	According to OPCC with inflation - Approximately $600,000				Go, City investigating	$600,000
302	Remove paving of entrance road from contract where water pipe is.	Tim Haggard	Paving and waterline up to gate on City				Go	$200,000

Attachment B
Redesign Change Log
Franklin WRF, Redesign

Item No.	Lead Team Member	Brief Description of Challenge or Opportunity	Brief Description of Actions Taken	Drawings Changed	Specs Changed	General	Civil	Arch.	Struct.	Proc. Mech.	HVAC	Plumb.	Elect.	I&C
1	Lapsley	Spare Parts	Revised spare parts to be an allowance for overall project		Many					X				
2	Carden	Bidders and vendors identified the scope of spare parts as a significant potential cost savings.	Eliminated the spare parts requirements from all specifications, except those where spare parts are required by code. Manufacturers will provide lists of spare parts with pricing at the time of shop drawing submittal. The City will select parts to be purchased using funds in Allowance Item No. 9. Special tools and lubricants (first fill and post-break-in fill) will remain in the Base Bid.	none	Many	X			X	X	X	X	X	X
3	Huguenard	The previous drawings and specifications include a lot of 316 stainless steel supports. Cost could be dropped by going to 304 SS, galvanized, or aluminum.	Discussions were held with one of CDM Smith's corrosion experts. Going to galvanized steel was determined to be acceptable. SS will look better longer and probably hold up longer, but in the majority of cases galvanized will hold up well. Supports will be changed to galvanized except near hypochlorite tanks and feed.	Many	Many					X	X	X	X	
4	Huguenard	The previous drawings and specifications show all most if not all of the electrical and I&C panels/cabinets as 316 SS. Cost could be dropped by going to 304 SS.	Based on discussions with the corrosion expert, outside panels/cabinets will be changed to 304 SS, inside will stay 316 SS. Panels near hypochlorite will be changed to Fiberglass with a post fabrication UV resistant gel coat.	Many	Many					X			X	X
5	Carden	Bidders and vendors identified manufacturer's service requirements as a significant potential cost savings.	TBD pending review of spreadsheet and recommendations	none	Many	X		X	X	X	X	X		X

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6	Carden	The team decided to insert consistent warranty terms into the specs after bidders commented on the warranty start dates.	Warranty terms now define Substantial Completion as Partial Substantial Completion of the process for which the equipment has been furnished. Most warranties are for one year from Substantial Completion. Some multi-year warranties were reduced. For systems with complex warranty requirements, inserted the definition of Substantial Completion but left the rest of the paragraph unchanged. Also strengthened the definitions in Section 01740.	none	Many	X		X	X	X	X	X	X	X
7	Perry/Sanchez	Review electrical equipment specifications to make sure at least three suppliers can provide all of the equipment.	Section 00300 was updated for the major electrical equipment (i.e. Sections 16345, 16430, 16431, 16450, 16480, 16483) to make sure the same three manufacturers were listed for each the same way.		00300 All Elect.								X	
8	Carden	It was recommended to delete most laboratory equipment for the Solids Processing Building.	Reduced amount of Allowance Item 1 from $210,000 to $70,000.	none	00300	X								
9	Karmasin	Reps expressed concerns over some firms' ability to package.	Obtained quotations for mechanical surface aerator shaft extensions from WesTech and Ovivo, and entered the total into new Bid Item Q in the Bid Form. Added quotations as Appendix G in Volume IV of the specs.	none	00300 and 01025	X				X				
10	Huguenard	The stainless steel troughs to be installed in the clarifier influent distribution box were unintentially sole sourced.	Specifications were modified to eliminate perceived sole sourcing.	N/A	00300 11354	X				X				
11	Karmasin	Bidders noted that there was no competition in the multistage centrifugal blower specification because the listed manufacturers are owned by the same parent firm.	We changed the listed manufacturers from Hoffman and Continental to Hoffman and Spencer.	none	00300, 11370					X				

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12	Pouliot	Bidders stated that Building Mechanical equipment was "sole sourced". Based on discussions with bidders, the "or equal" requirements 00700 6.05.A were the source of this perception.	Added language in Section 00800 to help clarify or equal requirements for Building Mechanical Equipment, and listed 2-3 manufacturer's on all HVAC and Plumbing equipment schedules.	H-16, H-9, HD-1, HD-2, and P-1	00800						X	X		
13	Huguenard	The previous specifications required the contractor to dewater sludges from basin and then haul them to the landfill. Handling of sludge is expensive.	Specification section 01014 was changed to allow the contractor to screen the sludge and then pump it to one of the City's sludge strorage tanks for dewatering by the City.	N/A	01014	X								
14	Huguenard	In the previous MOPO specification (01014) we required bypass pumping around the manhole just prior to the influent pump station to allow connecting the EQ return line. Keiwitt tells us that this has a cost of about $800K associated with it.	A proposed solution has been identified and will be discussed with the City in the review meeting. We propose moving the drop pipe inside the manhole to eliminate the need to create a low connection into this manhole and thus eliminate the need fro bypassing.	C-51	01014	X	X							
15	Huguenard	In the previous MOPO specification (01014) we required bypass pumping from the new BNR influent distribution box to the BNRs. Keiwit suggested a solution that would eliminate the need for this bypass pumping, which was priced at about $1.1 million.	The MOPO specification (01014) will be modified to change the constraints to allow an option of gravity splitting of flow if they can meet certain criteria.	N/A	01014	X								
16	Huguenard	The contractors indicated that there was a lot of money tied up in the bypassing of the filters for filter header replacement.	The City is looking into the potential for the regulators to allow bypassing the filters during this part of construction. Check in on findings.	M-34, M-35	01014	X								
17	Huguenard	The previous MOPO specifications (01014) had a few other constraints that could be eased a little.	Other modifications were made as necessary.	N/A	01014	X								
18	Huguenard	The previous specifications gave the Owner all control over the schedule float, which caused the contractors to add risk money to the bid.	Specification section 01310 (Scheduling) Was modified to make the float "shared" float.	N/A	01310	X								

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19	Huguenard	The cost of the scope in the photography specification was about $280K. The intensity of the specification needed to be reduced to reduce cost.	Specification section 01322 (Photographic Documentation) was modified to eliminate portions of the photographic requirements.	N/A	01322	X								
20	Carden	Requiring the contractor to purchase chemicals represented a potential cost savings.	These requirements have been changed to state that the Owner will provide chemicals except for polymer and boiler water treatment chemicals.	none	01665, 01666, 11255, 11320, 11325, 11363, 11366	X				X				
21	Huguenard	Section 01666 (Commissioning services for the biosolids treatment system) implies that the Contractor must provide certified operators. The specification also includes other requirements that can be loosened some.	Specification section 01666 was modified to lessen the operator qualifications and reduce some other requirements.	N/A	01666	X								
22	Allen	DIP specifications on wall thickness/pressure rating were conservative.	Performed calculations to establish specific pipe class orpressure rating for each pipe system. Added table of pipe thicknesses to specification section 02616.	N/A	02616		X							
23	Allen	DIP drawing notes and specification restraining limits were conservative.	Performed calculations to establish restraining lengths for each piping system. Added table of restraining lengths to specification section 02616. Removed restraining information from drawings.	All Yard Piping	02616		X							
24	Huguenard	The previous specifications imply that DIP linings/coatings for non-potable are all concrete lined with Protecto 401 coating.	The specifications will be modified to differentiate between upstream and downstream of the clarifiers. Downstream will have to Protecto 401.	N/A	02616 15072		X			X				

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25	Boggs	Remove epoxy coating from Headworks structure. Further investigate removal of coatings from Prestressed Tanks. Slight changes to concrete mix design to reduce porosity.	Coating removed from Headworks structure and extents of wall coating changed for Digesters.	S-3, S-4, S-5, S-6, S-7	3180				X	X				
26	Boggs	Revise concrete repair specs for less expensive, fast-setting repair mortars.	Recommendation made by Sika on a different project. Confirmed the alternate material is NOT an inferior product. Savings approximately 30% on material.	N/A	03740 03471				X					
27	Alford/Boggs	Opportunity to consider other buildnig construction methods for Electrical Building	Added Precast Preengineered Concrete Building as an alternate deduct for the construction of the main electrical bulding	A-7a, A-7b, S-38A, H-7, E-58	03415			X	X		X		X	
28	Alford	All interior CMU walls included masonry-cell insulation. Not critical at the walls seperating non-conditioned from non-conditionied spaces	Only requiring CMU masonry-cell insulation at CMU walls seperating conditioned from non-conditioned spaces. 04200 includes a list of the walls required to be provided with masonry cell insulation	A-1, A-10, A-11, A-12, A-13, A-14, A-15, A-24	04200			X						
29	Alford	Masonry Cell Insulation specified to be masonry cell inserts. Opportunity to conisder the use of foamed in placed masonry cell insulation	Revised to allow contractor to select either masonry cell inserts or foamed in placed masonry cell insulation	N/A	04200			X						
30	Alford	Consider less expensive masonry cavity mortar proteciton systems	removed the requirement for the full height masonry cavity morat mat	A-7, A-8, A-20, A-27, A-28, AD-3, AD-4, AD-6, AD-7	04200			X						
31	Alford	Consider use of aluminum handrail/guardrail at metal pan stairs in solids processing bldg	Metal Pan Stairs will include aluminum handrail/guardrail	A-21, A-22, A-23	05500, 05510			X	X					

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32	Alford	Bituminous Dampproofing not needed for all locaitions	Revised to require bituminous dampproofing only at the below grade portion the Headworks Grit Facility, Solids Processing Building and Digester Building.	N/A	7115			X	X					
33	Alford	Perimeter insulation not needed or required by code. Contractors were interpreting 07210 that it required perimeter insulation.	Clarified 07210 so that perimeter insualtion is not included	N/A	07210			X						
34	Alford	Opportuniity to consider other roofing options	Added Thermoplastic Polyolefin (TPO) Roofing systes as an alternate deduct for all roofing areas	N/A	07543			X						
35	Alford	Resinous Flooring specified included environmentally friendly components such as recycled glass and soy additives increasing the cost of the resinous flooring.	Revised specificaiton to remove environmentally friendly components.	N/A	09671			X						
36	Carden	Vendors suggested that eliminating the requirement for the Engineer and/or Owner to attend factory testing would be a significant potential cost savings.	Clarified witnessed testing requirements to state that the Engineer and Owner may (not shall) attend testing, and removed requirements for the Contractor to pay the Engineer's and Owner's costs to attend testing.	none	11214, 11313, 11363, 11383, 15541					X				
37	Carden	At City's request, standardized Process specs for systems (polymer dilution units, screw presses, centrifuges, etc.) where the equipment supplier provides VFDs in their panels.	Revised specs to state that VFDs shall be as manufactured by Allen-Bradley.	none	11246, 11257, 11335, 11363, 11366					X			X	
38	Carden	Bidders asked to shorten the period between the completion of performance testing and the start of demolition of the old UV system.	We revised the spec to state that the Contractor can demolish the old UV system after the first 30 days of the 12-month Routine Effluent Quality Test.	none	01014, 11265					X				
39	Carden	Bidders questioned the significance of the UV system's six-month trial period and its relation to Substantial and Final Completion.	We deleted the six-month trial period, as it has no bearing on completion.	none	11265					X				

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40	Lapsley	Screenings Sluice Trough Knife Gate Materials	Revised specification requirement for isolation knife gates to coated carbon steel in lieu of 316 SST		11332					X				
41	Lapsley	Warranty Requirements for Screens	Reduced warranty on screening equipment from 5 years to 3 years		11335					X				
42	Whitmore	Centrifuge control panel is in same building as PLC-11 so fiber optic cable not required	Spec edited.		11363					X				
43	Carden	The centrifuge vendors pointed out that the specified fiber optic equipment in the control panels was not necessary.	Edited the centrifuge spec to change from fiber to Ethernet.	none	11363					X				X
44	Carden	Spare parts removed and replaced by an allowance	Spec edited.		All 133xx									X
45	Boggs/ Nangle	Change Pre-Engineered Canopies to galvanized steel	Specification revised		13120			X	X					
46	Sanchez	Routing of wiring for new BNR instruments suggested a new PLC/RIO to be furnished there.	New PLC-2 to be furnished.	I-3, I-18	13300, 13330								X	X
47	Whitmore	Reduce CompactLogix CPU type L33ERM to L33ER	Spec edited.	-	13311									X
48	Whitmore	Excessive warranty on fiber optic cable not required	Spec edited.		13321									X
49	Alford	Reconsider the elevator interior finishes	Interior finishes revised - luminous ceiling in lieu of metal ceiling; Door/Door Faces primed steel in lieu of stainless steel; interior plastic laminate in lieu of stainless steel; raised rubber floor in lieu of tile	N/A	14240			X						
50	Carden	Bidders noted that the bridge crane quotes varied wildly due to conflicting requirements in the spec. Also, the requirement for a motorized rotating hook is not available for cranes with a capacity of less than 50 tons.	We have broken out the light-duty (workstation) bridge cranes into their own new Section 14631 and deleted the requirements for motorized rotating hooks.	none	14630, 14631				X	X				

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51	Huguenard	The contractors indicate that the seismic/support engineering requirements are fairly expensive.	Changes were made to clarify materials and requirements, including support engineer requirements.	N/A	15140					X	X	X	X	
52	Pouliot	Bidders stated that seismic requirements for building mechanical systems seemed excessive.	Updated seismic requirements for HVAC, Plumbing, and Fire Protection change component importance factor to 1.0 for non-life safety systems and removed special inspection requirements for fire protection systems. Note that based on further review, it has been decided that none of the HVAC or Plumbing components are considered "life safety" in relation to ASCE-7, so all HVAC and Plumbing components will have a 1.0 importance factor. This will be updated in the bid set.		15300, 15400, 15500						X	X	X	
53	Pouliot	N/A	Deleted information for dry-pipe systems and wax-coated sprinklers which were not applicable to this project.		15330								X	
54														
55	Pouliot	Bidders stated to consider using CPVC for water piping in lieu of copper, and PVC for sanitary piping in lieu of cast iron.	Changed all water piping to CPVC. Changed sanitary piping to PVC, with the exception of the Digester Building - due to high temperature drainage.	Various Process Drawings	15410					X		X		
56	Pouliot	Allow alternate material (Type 316 SS) for exterior odor control ductwork in lieu of FRP.	Added Deductive Alternate B note to applicable drawings.	H-2 to H-5, H-8 to H-12, M-8 to M-11, M-13, M-91, M-92	15500					X	X			

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57	Perry/Sanchez	Change all 316SS on the job to 304SS.	All 316SS was changed to 304SS in the specifications and drawings. Except a General Note on Electrical Drawing E-3 was added to note that all conduit mounting equipment and panel mounting equipment used indoors at the Headworks Facility and the Solids Processing Building will be 316SS, unless otherwise noted.	E-3, E-39, E-41, E-51, E-52, E-80, ED-2, ED-3, ED-4, ED-5, ED-6, ED-7	Division 16					X	X	X	X	X
58	Perry/Sanchez	Remove or reduce the requirements for the conduit layout shop drawings.	The requirements for the shop drawing conduit layout drawings were clarified.		16000								X	
59	Perry/Sanchez	Reduce the infrared scanning of equipment requirements.	The infra-read hot spot inspection requirements in Section 16000 were revised and relaxed.		16000								X	
60	Perry/Sanchez	Warranty requirements.	The warranty requirements were revised in the Division 16 equipment specification sections.		16000, 16345, 16370, 16430, 16431, 16450, 16470, 16480, 16483, 16720, 16727, 16781	X		X	X	X	X	X	X	X
61	Perry/Sanchez	Clarify independent testing requirements.	Section 16000 requires the Contractor to employ the services of a single independent recognized power systems testing company. This independent recognized testing company will be used for all testing. This was clarified in the Division 16 equipment specifications.		16000								X	

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62	Perry/Sanchez	Delete requirement to include extra electrical conduit/wire in base bid (Section 16000, Paragraph 1.01.S).	In Section 16000, Paragraph 1.01, the extra conduit/wire requirement was deleted.		16000								X	
63	Perry/Sanchez	Warranty requirements.	The warranty requirements were revised in the Division 16 equipment specification sections.		16000, 16345, 16370, 16430, 16431, 16450, 16470, 16480, 16483, 16720, 16727, 16781	X		X	X	X	X	X	X	X
64	Perry/Sanchez	Remove the requirement of Myers hubs on gasketed enclosures on penetrations on the bottom of the enclosures. Only require sealing bushings.	In Section 16110, the option to use an equivalent sealing ring/locknut grounding type was added to the specification requirement.		16110								X	
65	Perry/Sanchez	Remove the requirement that conduit elbows be made of aluminum coated with bitusmastic paint, or only require it for large conduits. Use PVC in lieu of aluminum.	The aluminum elbow requirement was relaxed so that it would only be required for conduit runs more than 100 feet in length where the risk of damage to the elbow is not the greatest. Section 16110, Paragraph 3.01, Raceway Applications was revised with a Table 16110-1 Raceway Application Guidelines.		16110								X	
66	Perry/Sanchez	Eliminate the requirement for mogul style LBs and conduit fittings for smaller conduit runs.	The requirement is intended to protect the cable during pulling. We changed the requirement so that moguls with rollers would only be required for 2-inch and larger conduits used on runs longer than 100'.		16110								X	

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67	Perry/Sanchez	Use Schedule 40 PVC in lieu of Schedule 80 PVC for conduits.	Some requirements were relaxed. Section 16110, Paragraph 3.01, Raceway Applications was revised with a Table 16110-1 Raceway Application Guidelines.		16110								X	
68	Perry/Sanchez	Use PVC in lieu of coated aluminum for instrumentation conduit that runs in slabs or concrete below grade.	Some requirements were relaxed. Section 16110, Paragraph 3.01, Raceway Applications was revised with a Table 16110-1 Raceway Application Guidelines.		16110								X	
69	Perry/Sanchez	Use a breakaway pull head in lieu of the dynamometer/tensiometer for the low and medium voltage cables.	The use of a breakaway pull head is not acceptable. Section 16120 specification requirement was relaxed for branch circuit conductors, control wiring, and shielded process instrumentation wiring. The requirements in Section 16121 for the medium voltage cables was not changed.		16120								X	
70	Perry/Sanchez	Allow specific manufactuer relays on MV switchgear to be optional.	In Section 16345, the specific manufacturer requirement for the protective relays was revised to also include or equal by switchgear manufacturer.		16345								X	
71	Perry/Sanchez	Eliminate the spare parts allowance for MV switchgear.	In Section 16345, the requirement for spare parts was revised.		16345								X	
72	Perry/Sanchez	In Section 16345, Paragraph 1.08.D, delete the $10,000 spare parts allowance.	In Section 16345, the $10,000 spare parts allowance was deleted. The spare parts requirements was revised.		16345								X	

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73	Perry/Sanchez	Have all VFDs furnished by Allen-Bradley, not be by each individual equipment manufacturers. Check spare parts allowance.	The process mechanical equipment specifications were revised. All the standalone VFDs are to be provided by the Electrical Contractor. All VFDs will be as manufactured by Allen Bradley per Section 16370. VFDs located in local control panels by process equipment suppliers (i.e. Sections 11246, 11257, 11335, 11363, 11366) will be specified to use VFDs as manufactured by Allen Bradley. The spare parts allowance was deleted. Spare parts requirements was revised.		16370					X			X	
74	Perry/Sanchez	Eliminate the drive burn in on LV VFD.	In Section 16370, the requirement for the 4 hour test prior to shipment was deleted.		16370								X	
75	Perry/Sanchez	Allow the VFDs to be submitted in one package by the Electrical Contractor instead of requiring them to be submitted with their associated process mechanical equipment packages.	The process mechanical equipment specifications were revised. All the standalone VFDs are to be provided by the Electrical Contractor. All VFDs will be as manufactured by Allen Bradley per Section 16370. VFDs located in local control panels by process equipment suppliers (i.e. Sections 11246, 11257, 11335, 11363, 11366) will be specified to use VFDs as manufactured by Allen Bradley.		16370					X			X	
76	Perry/Sanchez	Eliminate harmonics testing, witness testing and all non-essential testing for VFDs, etc., in the specs.	In Section 16370, the requirements for harmonic testing was revised to include drives 100 HP and larger. Shop testing (4 hour burn-in) prior shipment was deleted.		16370								X	
77	Perry/Sanchez	Remove the K4 factor requirement on 3000 kVA padmounted transformers.	In Section 16430, the K4 factor requirement was deleted.		16430								X	

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78	Carden	The team elected to delete the FOG receiving station and related equipment and piping to reduce cost.	The entire FOG system has been marked as future on the drawings. FOG-related language in the specs has been crossed out. Spec sections and Process Mechanical drawings dedicated solely to FOG equipment have been deleted.	Deleted M-66 & M-67, E-101. Modified G-8, C-22, C-27, C-37, C-47, M-68 to M-82, MD-17, I-8, I-34, I-36, I-43, I-55, I-57	Deleted Sections 03360, 11317, 11333, 13236. Modified Sections 00020, 01010, 01014, 01480, 01666, 02605, 02616, 02640, 11255, 11301, 11315, 13212, 13305, 13330, 13340, 15066, 15072, 15100, 15120, 15250, 15257	X	X		X	X		X	X	X

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79	Huguenard	The previous drawings and specifications include a lot of 316 stainless steel supports. Cost could be dropped by going to 304 SS, galvanized, or aluminum.	Discussions were held with one of CDM Smith's corrosion experts. Going to galvanized steel was determined to be acceptable. SS will look better longer and probably hold up longer, but in the majority of cases galvanized will hold up well. Supports will be changed to galvanized except near hypochlorite tanks and feed.	Many	Many					X	X	X	X	
80	Huguenard	The previous drawings and specifications show all most if not all of the electrical and I&C panels/cabinets as 316 SS. Cost could be dropped by going to 304 SS.	Based on discussions with the corrosion expert, outside panels/cabinets will be changed to 304 SS, inside will stay 316 SS. Panels near hypochlorite will be changed to Fiberglass with a post fabrication UV resistant gel coat.	Many	Many					X			X	X
81	Haggard	Some structures identified as "to be demolished" on the previous drawings are not in the way of new work.	Demolition drawings were modified to eliminate demolition of structures that are not in the way of proposed work.	C-12 to C-17										
82	Haggard	A signifcant cost savings would be realized by allowing excess materials to be left onsite.	The drawings will be modified to construct berms of excess soils. Waste rock and unsuitable soils will be hauled offsite.	C-28 to C-37										
83	Haggard	Demolition of the temporary parking lot near the southwest fence line won't impact this project one way or another. So, demolition is not necessary at this time.	The drawings will be changed to allow the stone parking lot near the southwest fence line to remain.	C35										
84	Haggard	With removal of the FOG system the large paved turnaround area near the FOG system will not be needed.	The drawngs are being modified to eliminate the large "turn-around" near the FOG area.	C-35 and C-37										
85	Haggard	One of the contractors asked if the erosion and sedimentation control requirements could be reviewed to reduce these requirements.	The E&SC drawings will be reviewed to see if anything can be reduced. No changes were identified	C-38 to C-45										
86	Haggard	The water main can be constructed under a separate City contract and be ready when this project's contractor needs it.	The drawings will be changed to eliminate the construction of the water main and associated paving down Claude Yates Drive.	C-48, C-49, C-54, and C-55										

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87	Haggard	Leaving the temporary access road in place after completion of construction won't hurt anything, except the connection to Mack Hatcher would need to be demolished.	The drawings will be changed to allow the stone construction access road in place after construction, with the exception of the connection with Mack Hatcher.	C-56										
88	Alford	Laboratory Casework Cost	Casework for Wet Lab and Bio Lab revised to not be included in contract. Casework shown for coordination of plumbing and electircal stub ups.	A-18a, A-18b, P-9, P-15, P-16, E-94	N/A			X				X	X	
89	Boggs		Hollow Core Roof Deck at Digester Bldg	A-27, A-28, AD-7				X	X					
90	Boggs	Consider using precast roofing system for Digester Building.	Roof system changed to Hollow Core Roof Deck at Digester Bldg on the Drawings. Specification Sections 05210 and 05321 removed.	A-27, A-28, AD-7, S-61, S-62, S-63, SD-6, 05210, 05321				X	X					
91	Boggs	Have the foundation of the solids building be on the same level and continuous rather than chopped into small pieces at different elevations.	Building Foundations revised as requested.	S-44, S-50, S-51, S-53, S-54, S-57, S-58					X			X	X	
92	Boggs/ Nangle	Change the Pipe Supports on the exterior of the Digester Building from HSS to W-Beam	The size (weight) of W-beam required was cost prohibitive due to slenderness ratio. Revisions were made to the baseplate to allow pipe supports to be installed after masonry work, rather than being built-in to masonry veneer.	S-59					X					

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93	Boggs	Change the solids processing building to a lower seismic category.	Seismic Design Category could not be revised from "D" to "B" in accordance with code. The diaphragms are considered "semi-rigid" and the deflections of the building with the revised (higher) seismic loading were outside the limits for the exceptions to code requirements. Column Detailing revised to allow lap splices in lieu of mechanical splices.	SD-4, SD-4A					X					
94	Lapsley/ Carden/ Pouliot	International Plumbing Code does not allow interior water piping to be PVC.	We are changing interior water piping from PVC to CPVC.	Headworks, Digester Building (in progress), Solids Processing Building (in progress)	none					X		X		
95	Lapsley	Interior Plant Water Piping Materials	Changed Headworks structure plant water piping to be CPVC	M2-M8						X				
96	Pouliot	FOG system will installed in the future. 12" odor control duct from the biosolids odor control system to the Digester Building related to the FOG system will be capped for future use.	Added duct cap.	H-10, C-23, M-91			X			X	X			
97	Pouliot	Bidders stated that combining fire protection zones/risers could save money.	Added notes allowing zones/risers to be combined with approval of the Authority Having Jurisdiction.	F-1									X	

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98	Perry/Sanchez	Removal of FOG System.	Showed FOG System equipment as future. Changed One Line Power Diagrams show to install empty conduits from MCC to future equipment location so wire could be installed in the future.	E-14, E-27, E-31, E-33, E-35, E-36, E-91, E-101 Deleted, E-102, E-104, E-105, E-106, E-116, E-117,			X	X	X	X	X	X	X	X
99	Perry/Sanchez	Require the reinforcing steel rebar and enveloped of concrete for duct banks beneath paved surfaces only.	The underground ductbank details shown on Electrical Drawing ED-4 were revised to match the requirements specified in Section 16900.	ED-4									X	
100	Perry/Sanchez	Modify duct bank separation (12") to minimize trenching costs.	On Electrical Drawing E-15, the 12-inch separation between ductbanks requirement was relaxed.	E-15									X	
101	Perry/Sanchez	Consolidate the feeders leaving the BNR basin and move the MCC / distribution panel closer to the BNR	The electrical design was revised. Power Panelboards, Mini-Power Zone, and RIO were added adjacent to the BNR Basin to help reduce the quantity of conduit/wiring between the basin and the Electrical Building. The motor starters located in MCC-1 and MCC-2 for the mixers were eliminated and a combination motor starter replaced the disconnect switch at each mixer.	E-9, E-23, E-24, E-37, E-48, E-51, E-56, E-64, E-65, E-66, E-67, E-68, E-86, E-115, E-117									X	X
102	Perry/Sanchez	Lower the rating of the 40kA required for all Metal-Clad.	Electrical Drawing E-16, the equipment rating was changed to 250 MVA.	E-16									X	

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103	Perry/Sanchez	Eliminate or reduce requirement for screened gravel beneath the duct banks.	The underground ductbank details shown on Electrical Drawing ED-4 which shows the gravel requirements was relaxed and revised.	ED-4									X	
104	Perry/Sanchez	Electrical Building changes.	Added note to extend the suspended ceiling grid and add five (5) lighting fixtures to accommodate the additonal building length if the Deductive Alternate A is selected.	E-58				X	X		X	X	X	
105	Perry/Sanchez	Jet mixing system in equalization basin.	Revised the note on Electrical Drawings, E-23, E-24, and E-59 for Additive Alternate A.	E-23, E-24, E-59						X			X	X