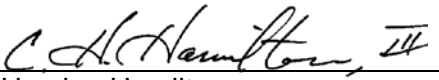


12. ABM METER REPLACEMENT PROJECT UPDATE
13. LIST OF SUGGESTED AGENDA ITEMS FOR THE NEXT SCHEDULED ENGINEERING SERVICES COMMITTEE MEETING
14. ADJOURNMENT

ATTEST TO POSTING:



Hayden Hamilton
Secretary of the Board

3-29-18 @ 2:30 p.m.

Date and Time of Posting
Outside Display Cases

**MINUTES OF THE ENGINEERING SERVICES COMMITTEE MEETING
OF THE RAINBOW MUNICIPAL WATER DISTRICT
MARCH 7, 2018**

1. **CALL TO ORDER** – The Engineering Services Committee Meeting of the Rainbow Municipal Water District on March 7, 2018 was called to order by Chairperson Prince at 3:00 p.m. in the Board Room of the District, 3707 Old Highway 395, Fallbrook, CA 92028. Chairperson Prince, presiding.

2. **PLEDGE OF ALLEGIANCE**

3. **ROLL CALL:**

Present: Member Prince, Member Stitle, Member Taufer, Member Brazier, Member Ratican, Member Robertson, Member Marnett, Alternate Nelson.

Also Present: General Manager Kennedy, Interim Engineering Manager Gerdes, Associate Engineer Powers, Operations Manager Milner, Eng. Tech. Rubio, Director Stewart.

Absent: Alternate Kirby.

There were two members of the public present: Mr. Carey and Mr. Alspach (Arcadis).

4. **SEATING OF ALTERNATES**

There were no seating of alternates.

5. **ADDITIONS/DELETIONS/AMENDMENTS TO THE AGENDA (Government Code §54954.2)**

There were no changes to the agenda.

6. **PUBLIC COMMENT RELATING TO ITEMS NOT ON THE AGENDA**

There were no public comments.

COMMITTEE ACTION ITEMS

*7. **APPROVAL OF MINUTES**

A. January 3, 2018

Mr. Prince asked if the minutes were changed. Mr. Kennedy said there was a paragraph added to the HDR Condition Assessment Update agenda item regarding future savings discussion.

Mr. Taufer said he made a comment regarding the same presentation and it was not included in the minutes. Mr. Kennedy pointed out the discussion during the presentation was quite lengthy. He inquired if there was something else that needed to be added. Mr. Taufer said what triggered the issue was that there were “no objections”. Mr. Kennedy responded by addressing Mrs. Rubio asking if she heard objections, Mrs. Rubio responded no. Ms. Brazier added that she also listened to the recording and confirmed there were no objections. Mr. Taufer said he made a

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comment regarding the report and it was not reflected in the minutes. Ms. Brazier responded the minutes do not include verbatim comments. Mr. Kennedy mentioned the minutes were to accurately reflect what was discussed with enough detail for the public to understand what was discussed, without having transcripts. Discussion ensued.

Mr. Prince suggested if a member feels there is a critical objection to note it in the minutes.

Mr. Kennedy suggested if a member feels they have an important comment to include in the minutes they should say during the recording "I want the minutes to reflect that I said this". He pointed out that the Board has given clear direction as to how to produce the minutes. Discussion ensued.

Mr. Taufer asked about the next steps for the HDR Condition Assessment program. Mr. Kennedy briefly went over the steps. Mr. Taufer said he thinks there were flaws with the program, but felt he was not given an opportunity to address them. Mr. Kennedy responded if there was something specific, to write them down, and submit them by email to him and Mr. Powers, prior to the next meeting. Discussion ensued.

Motion: Accept the minutes as approved.

Action: Approve, Moved by Member Stitle, Seconded by Member Brazier.

Vote: Motion passed (summary: Ayes = 6, Noes = 1, Abstain = 0).

Ayes: Member Prince, Member Stitle, Member Brazier, Member Ratican, Member Robertson, Member Marnett.

Noes: Member Taufer.

B. February 7, 2018

Motion: Accept the minutes as approved.

Action: Approve, Moved by Member Stitle, Seconded by Member Robertson.

Vote: Motion carried by unanimous roll call vote (summary: Ayes = 7).

Ayes: Member Prince, Member Stitle, Member Taufer, Member Brazier, Member Ratican, Member Robertson, Member Marnett.

8. PRESENTATION FROM BRENT ALSPACH REGARDING ZERO LIQUID DISCHARGE DESALTER OPTIONS

Mr. Kennedy introduced Mr. Alspach the author of the Membrane Infiltration Guidance Manual and nationwide leader. He said Mr. Alspach has identified different disposal methods for brine. Mr. Alspach said he was the Director of Applied Research for Arcadis and began his presentation by mentioning how drought and water stress were becoming prevalent around the globe. He pointed out the response to drought/water stress would be to increase the use of alternative supplies, which typically are challenging to treat and/or poorer quality. He listed the alternative supplies: Brackish groundwater, Saline surface water, Recycled wastewater and Seawater - all requiring desalination and concentrate management. He went over the concentrate management options as follows:

CONCENTRATE MANAGEMENT OPTIONS	
Strategy	Issues / Limitations
Surface Water Discharge	<ul style="list-style-type: none"> • Environmental permitting • Availability of suitable receiving bodies • Impact on downstream water supplies
Deep Well Injection	<ul style="list-style-type: none"> • Environmental permitting • Potential for inducing earthquakes
Evaporation Ponds	<ul style="list-style-type: none"> • Environmental permitting • Available area • Capital cost
Land Application	<ul style="list-style-type: none"> • Environmental permitting • Distribution • Requires salt-tolerant crops • Micro-pollutant toxicity • Increase in soil salinity
Zero Liquid Discharge (ZLD)	<ul style="list-style-type: none"> • Cost

Mr. Alspach defined zero liquid discharge as follows:

- Applied to desalination residuals from the treatment plant. Could also apply to conventional treatment residuals handling. ZLD literature could be vague. He clarified the ZLD he would be discussing in this presentation would be concentrating dissolved solids.
- Assumed 100% Recovery. Not near ZLD (NZLD). Solid slurry discharge transported offsite for beneficial use or disposal.
- Not a Boutique Process. Not limited to certain concentrate water quality characteristics. Applicable virtually anywhere.

Mr. Alspach pointed out the conventional ZLD concept has two steps - Advanced Concentration of a reverse osmosis (RO) brine and a Solids Generation. He listed the feasibility benefits: Application not limited by water quality, minimal environmental impact, few regulatory limitations and minimal practical restrictions. He stated the feasibility detriments were cost. Discussion ensued.

Mr. Alspach provided the following information on the brine concentrators:

- Utilize mechanical vapor compression (thermal) technology.
- Importance of pretreatment the process/additives and their purpose.
- Distillate (treated water) produced by the brine concentrators were low in solidity (Total Dissolve Solids (TDS) less than 10 mg/L.
- Brine TDS up to 250,000 mg/L. May achieve 300,000 mg/L with softening pretreatment.
- Specific energy requirements 60-90 kWh/kgal distillate. Higher specific energy requirements for higher degrees of concentration. Assumes the use of electric (grid) power (i.e. no waste heat).

Mr. Taufer asked if the mechanical vapor compression technology was new. Mr. Alspach responded no, but it concentrates the brine up to a degree that RO was not capable of doing.

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Mr. Alspach provided the following disadvantages of Brine Concentrators:

- System complexity.
- Minimal institutional operations knowledge / experience.
- Responds slowly to flow changes – equalization storage required.
- Requires a source of steam for start-up, including after every maintenance event. Requires a dedicated boiler or other on-site steam generating process.
- Aesthetics.

Mr. Alspach provided the following information about the Crystallizers:

- Utilize mechanical vapor compression (thermal) technology.
- Pretreatment for scale control is not used.
- Distillate (treated water) TDS 30-50 mg/L.
- Centrifuges are used to dewater the solid slurry residuals.
- Specific energy requirements 180-250 kWh/kgal distillate. Higher specific energy requirements for more highly soluble species (e.g. higher concentration of nitrate salts). Assumes the use of electric (grid) power (i.e. no waste heat).

Mr. Alspach noted the disadvantages of the Crystallizers were similar to the brine concentrators.

Mr. Alspach said the desalination costs hinge on energy. He compared the specific energy desalination process of Seawater Desalination 10-15 kWh/kgal, Brine Concentrators 60-90 kWh/kgal, and Crystallizers 180-250 kWh/kgal. He also provided examples of their costs based on the USBR Desalination and Water Purification Research and Development Program. He pointed out ZLD being the highest cost and continued to present the comparisons and strategies.

Mr. Alspach stated in summary ZLD was an expensive option for concentrate management, but it offers several critical advantages that broadly enhance the viability of desalination. He listed the following ZLD advantages:

- Feasible deployment virtually independent of concentrate water quality.
- Lack of environmental and regulatory permitting constraints that inhibit many other concentrate management options.
- Overall costs (including primary RO plus ZLD) that are roughly comparable to seawater desalination.
- Virtual elimination of the problem of desalination concentrate, although at a high cost, but not prohibitively high.

Mr. Kennedy said the reason for this discussion/presentation was to determine what to do with the brine as the District works through the Bonsall Basin Desalter Project. Discussion ensued.

9. DISCUSSION AND POSSIBLE ACTION REGARDING CHANGING THE COMMITTEE CHARTER TO INCLUDE OPERATIONS

Mr. Kennedy asked the committee members to review the proposed revisions to the Admin Code to add Operations Services and return with comments or if acceptable to proceed with a vote.

Ms. Brazier suggested removing the word “Services”.

Mr. Robertson agreed with Ms. Brazier's modification, and suggested proceeding with the vote.

Mr. Stitle suggested allowing time to review and return next month.

Mr. Kennedy requested all comments be submitted by email to him and Mr. Powers as soon as possible.

10. RATE SETTING UPDATE

Mr. Kennedy said the rates were approved and six protest letters were received. He mentioned the Board voted to continue the yearly rate hearings.

Ms. Brazier asked if Mr. Roger's request had been addressed. Mr. Powers responded he has been communicating with Mr. Roger, and plans to provide information through the model. Discussion ensued.

Mr. Carey pointed out the high water main breaks during the Lilac fires and suggested labeling the high pressure fire hydrants. Mr. Kennedy said he would review the feasibility of his suggestion. Discussion ensued.

11. AMI/ABM PROJECT UPDATE

Mr. Kennedy said ITRON was falling behind and would not be ready until the Summer 2018. He mentioned due to SDG&E's security protocols in the shared network the products installed by AMI at the end of last year need to be replaced. He said the problem with ABM was that the schedule has been delayed to September 2018. He mentioned possibly breaking the work into two stages. Discussion ensued.

12. LIST OF SUGGESTED AGENDA ITEMS FOR THE NEXT SCHEDULED ENGINEERING SERVICES COMMITTEE MEETING

The following agenda items were suggested:

- Engineering Committee and Operations Charter Revision
- HDR Report Comments
- Sewer Service Agreements (Palomar College and Pala Mesa Highlands)
- Presentation on the Pankey LS
- ABM Update
- Floodway/Floodplain Report

13. ADJOURNMENT

Motion: To Adjourn the meeting.

Action: Approve, Moved by Member Prince, Seconded by Member Stitle.

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Vote: Motion carried by unanimous roll call vote (summary: Ayes = 7).

Ayes: Member Prince, Member Stitle, Member Taufer, Member Brazier, Member Ratican, Member Robertson, Member Marnett.

Timothy Prince, Committee Chairperson

Dawn M. Washburn, Board Secretary

April 4, 2018

SUBJECT

DEVELOPER PROJECTS UPDATE

SEWER SERVICE AGREEMENT - PALA MESA HIGHLANDS, TM 5187-1 (Map 16124)
SEWER SERVICE AGREEMENT - PALOMAR NORTH EDUCATION CENTER

PALA MESA HIGHLANDS

Pala Mesa Highlands, located along Old Highway 395, is a 124-lot development currently under construction. The Developer, Beazer Homes, and District entered into a number of Agreements regarding sewer connection fees, paid capacity fees (sewer service charges), and EDU allocations dating back to April 14, 1999. On December 14, 2015, the District and Beazer Homes entered into an Agreement to Acknowledge and Defer Sewer Connection Fee Charges. The credit for paid sewer service charges of \$965,007, then representing 55 EDU's of capacity, was identified in the Agreement which was to expire December 14, 2017.

The Developer requested a time extension for the Agreement prior to its expiration; however, in 2016/17 the application procedure was revised in the Administrative Code for small (5 parcels or less) and large (subdivisions) developments. Subdivisions greater than 5 parcels/lots now require payment of fees and/or an agreement (Sewer Service Agreement) prior to a commitment of service. The time necessary to complete an agreement and present it to the Board for consideration meant going past the expiration date of December 14, 2017.

At the December 5, 2017 Board meeting, a time extension of six months for the Agreement was approved, within which time a new Sewer Service Agreement (SSA) would be prepared, reviewed and brought to the Board for approval.

Administrative Code Title 9, SEWER, and Chapter 9.05 and its Sections, were amended and approved on August 22, 2017 by Ordinance No. 17-10. Section 9.05.080 specifically deals with sewer service commitments of five (5) or more EDUs, which include subdivisions.

The process for subdivision approval includes issuance of an Availability Letter which states that the District has sufficient capacity available to serve the proposed project. It is not a commitment of capacity. The next step is and application for issuance of a Commitment Letter (Will Serve Letter). The Commitment Letter states that sewer service/capacity is committed to the project and it sets the terms and conditions which must be satisfied for service. Those terms and conditions are included in a Sewer Service Agreement (SSA).

The SSA generally includes requirements for plan preparation, a construction agreement, payment of capacity/connection fees, length of agreement term, and other items specific to the project. The SSA requires payment of 50% of the total amount of the connection/capacity fees for the entire project. The remaining 50% will be paid as sewer permits for the project are issued. The service commitment (SSA) is effective for a five-year term which may be renewed for an additional five-year term upon application and payment to the District of a fee equal to the difference between fees previously paid and the current fee in effect at the time of renewal.

For the Pala Mesa Highlands project, the SSA identifies the fees previously paid and credits the same to Beazer. They are required to bring the fees current and continue to pay connection fees as sewer permits are requested for each lot.

A Sewer Service Agreement has been prepared and reviewed by District staff/Counsel and Beazer Homes. It will be presented for Board review and consideration for approval at their April 24, 2018 meeting.

If the Sewer Service Agreement is approved, the District will honor the \$965,007 in sewer connection fees previously paid. In addition, the SSA sets forth terms and conditions for sewer connections and payment of connection/capacity fees at current established rates. The SSA has a five (5) year term with one additional five (5) year extension possible. The total additional connection fees due is approximately \$1,285,247, based on current fees and planned home sizes.

PALOMAR NORTH EDUCATION CENTER

Palomar College acquired property north of State Route 76 between Interstate 15 and Horse Ranch Creek Road in the mid 2000's for the purpose of constructing its North Education Center. The campus will ultimately provide education services to over 8,000 part-time students and faculty. The campus is scheduled to open in June 2018.

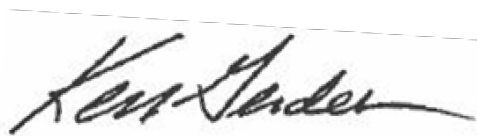
Palomar acquired 100 Equivalent Dwelling Units (EDUs) of sewer capacity from Passerelle, Inc. in 2007 and the District agreed to recognize that assignment of EDUs to Palomar in a 2012 agreement (Passerelle Agreement). In 2015, the District, Passerelle and D.R. Horton entered into two amended agreements (Passerelle and D.R. Horton Agreement) which identify D.R. Horton as successor-in-interest to certain portions of the Passerelle property, as well as certain Passerelle rights and obligations. The agreements also concern the construction, installation and financing/reimbursement obligations for sewer facilities serving the benefiting properties, including the Palomar site.

The SSA for Palomar recognizes past agreements and obligations as well as identifies the approved plans and construction agreement for the sewer system. The SSA also details how the monthly sewer costs will be billed and used to track/calculate sewer EDUs in the future. If the water meter data indicates that Palomar is approaching and /or exceeding the 100 EDU allocation, additional capacity fees will be required.

As part of the sewer improvements, two flow monitoring manholes were constructed. These District manholes may be used in the future to collect samples, monitor waste streams for strength of sewage, biochemical oxygen demand or other characteristic in case future regulatory compliance leads to charges and fees for those discharges. In addition, flow metering may be contemplated for flow based monthly rates instead of using water meter data. Flow based data would provide an accurate correlation between water use and sewage generation.

The Sewer Service Agreement allows discharge of 100 EDUs to the District sewer system once the Horse Creek Lift Station is completed, accepted and operational (July 2018). The Agreement also includes reimbursement from Palomar for the sewer stub constructed for the campus by D.R. Horton.

A Sewer Service Agreement has been prepared and reviewed by District staff/Counsel and Palomar Community College District. It will be presented for Board review and consideration for approval at their April 24, 2018 meeting.



Ken Gerdes, P.E.
Interim District Engineer

4/04/2018

MAP NO. 16124

COUNTY OF SAN DIEGO TRACT NO. 5187-1

SHEET 22 OF 22 SHEETS

NON-TITLE INFORMATION

LEGEND

- INDICATES AREA SUBJECT TO INUNDATION DURING A 100 YEAR STORM EVENT
- INDICATES DITCH SUBJECT TO INUNDATION DURING A 100 YEAR STORM EVENT

SOLAR ACCESS

ALL LOTS WITHIN THIS SUBDIVISION HAVE A MINIMUM OF 100 SQUARE FEET OF SOLAR ACCESS FOR EACH EXISTING AND/OR PROPOSED DWELLING UNIT AS REQUIRED BY SECTION 81.401(M) OF THE SUBDIVISION ORDINANCE.

