

HEBER PUBLIC UTILITY DISTRICT

REPORT TO BOARD OF DIRECTORS

MEETING DATE: May 21, 2015

FROM: Laura Fischer, General Manager

SUBJECT: Information Only Regarding Hydraulic Report Related to Imperial Center

INFORMATION ONLY

We received a copy of the Hydraulic Report for the Imperial Center Project on May 12, 2015. Staff forwarded it to our Engineer and once we have had an opportunity to review it in detail we will report back to you with any comments.

The report summary is attached for your review and consideration. The report was prepared by Albert A. Webb and Associates and proposes the following off-site water system improvements.

- 1.7 MG welded steel water tank with altitude valve, separate inlet and outlet piping, fittings, seismic valve control, Flextend seismic isolation spools, and tank mixing designed to the current AWWA D-100 standards.
- Booster pump station with (2) 50-HP VFD pumps and (1) 50 HP high capacity fire pump, stand-by genset, metal shade structure, unit piping, electrical controls, SDADA/telemetry, valves, fittings, and all other appurtenances.
- Site work for tank and booster pump station including site grading, retention basin (if needed), access road, fencing, and pavement.
- 12-inch diameter C-900 PVC inlet/suction pipeline with restrained joints from existing pipeline.
- 18-inch diameter C-905 PVC discharge pipeline with restrained joints to existing pipeline.

The proposed tank and booster pumps station will be located between Pitzer Road on the west, Highway 111 on the east, Correll Road on the North and East Heber Road/Highway 86 on the south. The property under consideration is not owned by Imperial Center.

The cost estimates for the proposed water system improvements include the following:

Construction Costs \$3,800,000
Contingency @ 15%
Design Engineering @ 8%
Contract Administration @ 2%
Field inspection @ 8%

Total project cost is \$5,000,000.

NEXT STEPS:

Staff will review the full document and submit comments to the County of Imperial. The full engineer's report can be accessed on line [DOWNLOAD FILES](#). I have attached a few pages of the report (172 pages total) for your review.

The current Imperial Center project is moving forward. The County has approved te grading plan for the project, but HPUD still has not received sufficient responses to our red-line plan check and our written letters. We submitted another letter requesting information and plan modification to the Imperial Center Development engineers last week. A copy is attached to this report for your consideration.

Respectfully Submitted,

Laura Fischer,
General Manager

Attachments: Summary of Engineer's Hydraulic Analysis Imperial Center
 Letter to Imperial Center regarding Plan Check



Technical Memorandum

To: Esperanza Colio Warren, Community & Economic Development Manger
County of Imperial

From: Brad Sackett, P.E.

Date: April 29, 2015

Re: Imperial Center Water System Improvement for Fire Flow

■ BACKGROUND

Imperial Center Project

The Imperial Center is designed to serve as a location for trade shows, where American-made Chinese products and Mexican wholesale merchandise can be displayed together for buyers to examine. The total project area is 78 acres, and the site is located at the northeast corner of the junction of State Route 111 and Heber Road (See **Figure 1**) near the Community of Heber in the Imperial County. The site is within Heber Public Utilities District (HPUD) service boundary. The Imperial Center is planned to include an outlet center, retail shopping mall, convenience store/gas station, central plaza/auction court, multi-story hotel, multiplex cinema, restaurant, information center, and parking areas.

Water Facility Improvements in Specific Plan

On April 10, 2007, Board of Supervisors of Imperial County approved Specific Plan (SP#02-0001) for the Imperial Center prepared by Development Design & Engineering Inc. The Specific Plan presented three alternatives for water system infrastructure improvements to serve the site. The project stakeholders implemented *Alternative Three*, by constructing 18-in dia. PVC pipeline along Correll Road between Pitzer Road and Highway 111, 12-inch diameter PVC pipeline along Heber Road between Pitzer Road and Yourman Road, and 12-inch diameter PVC pipeline along Yourman Road between Heber Road and Correl Road. No other improvements to the water system and no water treatment plant capacity expansions have been constructed for the project.

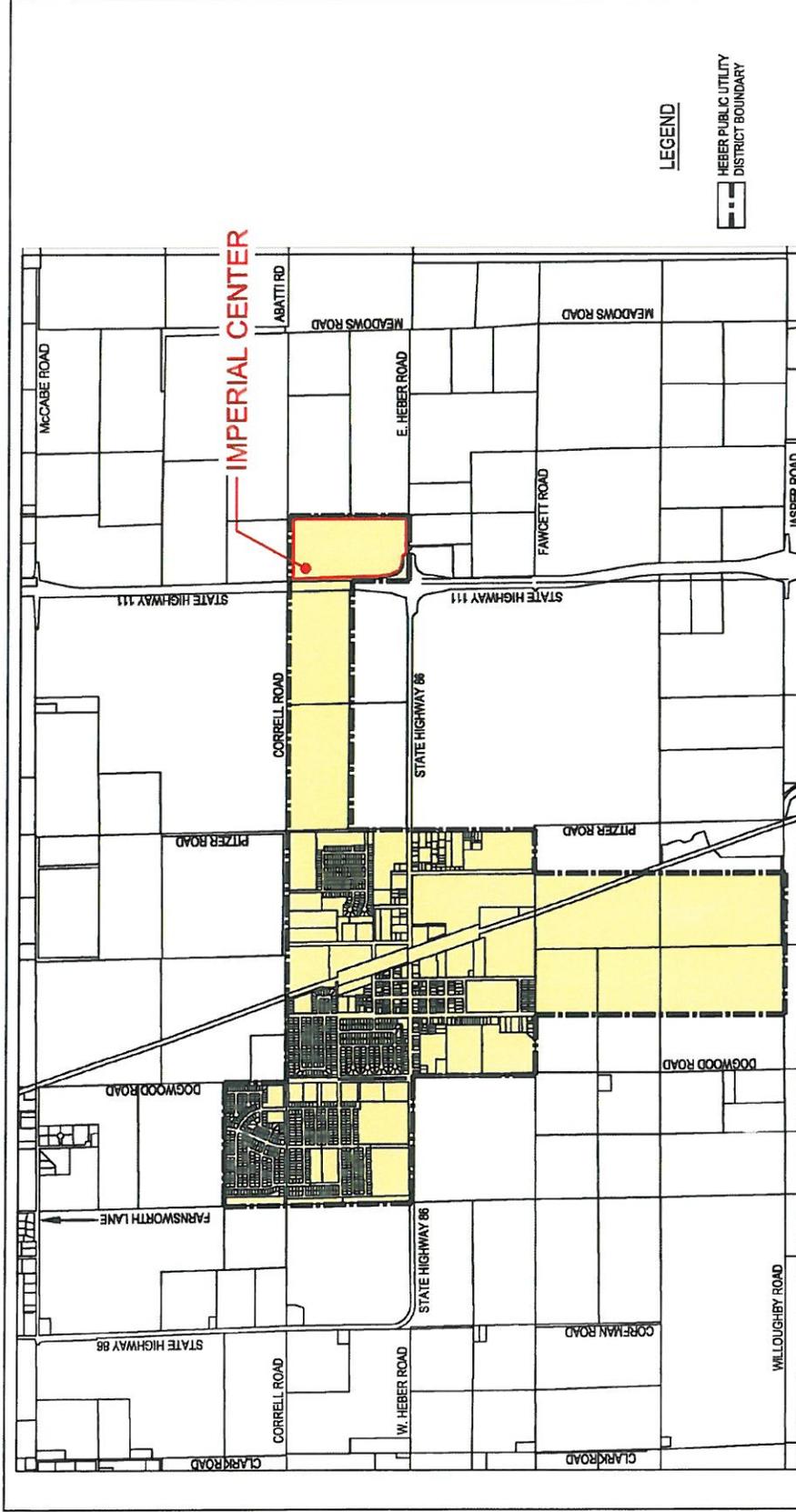
Existing Fire Flow Capacity

On November 18, 2011, Imperial County Fire Department performed a fire hydrant test near the intersection of Heber Road and Hwy 111. The test resulted in a flow of 870 gpm @ 27 psi with a static pressure of 45 psi and residual pressure 25 psi. It is anticipated that the test result will not meet the fire flow requirement for future development of the Imperial Center without additional water system improvements. The fire flow requirement for the Imperial Center is 3,000 gpm for three (3) hours (see **Appendix 1**).

Purpose of Study

The purpose of this study is to confirm the required water system facilities to provide water service with adequate fire flow capability for the Imperial Center project. The tasks of this study include:

- Update the hydraulic model for the Heber Public Utility District's (HPUD) water distribution system from the previous technical memorandum prepared by Webb Associates in 2013 (see **Appendix 7**).
- Refine the water demand based on the most recent project site plan
- Update the hydraulic analysis with water demands and fire flow requirements
- Develop required offsite water system improvements
- Update the project cost estimate



<p>The Holt Group, Inc. · ENGINEERING · PLANNING · SURVEYING</p> <p>1601 NORTH IMPERIAL AVENUE EL CENTRO, CALIFORNIA 92543 760-337-3883</p>		 <p>NOT TO SCALE</p>	<p>HEBER PUBLIC UTILITY DISTRICT BOUNDARY AND IMPERIAL CENTER</p>		<p>FIGURE 1</p>
			<p>PROJECT NO. THG 1414/RP</p>	<p>DATE 03-02-2012</p>	

▪ DATA UPDATE FOR IMPERIAL CENTER FIRE FLOW ANALYSIS

Preliminary Site Plan – Imperial Center

The project architect, JWDA provided a preliminary site plan of the Imperial Center. The site plan involves all the proposed facility type and footage information (see **Appendix 2**). The total building area is over one million square feet with parking areas of over 900,000 square feet. The space behind the center can accommodate over 100 container trucks and up to 3,000 cars.

In addition to the exhibition, distribution, and entertainment centers, the Imperial Center also consists of a large stage, multi-story hotel, an interstate gas station, dining area, and a United States commodity center. The preliminary site plan includes:

1. A gas station with 24 pumps and AM/PM store
2. Two (2) commercial buildings
3. Four (4) 9,000 square-foot restaurants and mart
4. A two story of 301,000 square foot building for wholesale exhibition with 188 exhibition spaces, each with 1,200 square feet.
5. A 70,000 square foot night market stalls
6. Three (3), two story of 108,000 square-foot each, office / warehouse type buildings
7. An outdoor center, which can be converted into a space with 60 small stands at night in front of the wholesale center. This creates a retail street that opens overnight.
8. A kilometer-long river, a stage, a swimming pool, a children's playground, and night market stalls on both sides of the river
9. A multi-story hotel with 286 rooms and restaurants.

The project site will be landscaped with low water demand plants and include several retention basins for the post-construction BMP's for storm water management.

Hydraulic Modeling and Water System Update

This study used the WaterCAD model developed by The Holt Group. The technical memorandum prepared by Webb Associates in 2013 confirmed that the model was generally in conformance with the HPUD's existing water system. As a part of this study tasks, Webb confirmed with the Holt Group (HPUD's engineer) that the HPUD water system has not been changed since the last technical memorandum was prepared. Therefore, the same hydraulic model was used as the basis for all subsequent hydraulic modeling performed in this report.

Water Demand Update

In the previous technical memorandum, Webb recommended using 2.1 MGD or 1,460 gpm for the Maximum Daily Demand (MDD) of the existing HPUD water system. This demand is from HPUD Water Distribution System Study prepared by Dynamic Consulting Engineers in 2011. Based on the preliminary site plan prepared by JWDA, this study performed literature surveys of water demand factors for the different facility types. The water demand factors are based on either physical facility footage or other planning parameters (see **Table 1**).

Table 1: Literature Survey for Water Demand Factor by Facility Type

Facility Type	Demand Factor	Data Source
Commercial	0.17 AF/year/1000 sf	1)
Commercial / Food Court	50 gpd / 100 sf	2)
Wholesale / Outlet	0.025 gpd / sf	3)
Office / Warehouse	0.06 AF/year/1000 sf	1)
Restaurant	0.741 / sf	3)
Gas Station	1 st Bay 1,000 gpd, additional bay 500 gpd	2)
Hotel with Restaurant	0.20 AF/year/1000 sf	1)

- 1) Water Demand Factor Update from City of Santa Barbara – See **Appendix 3a**
- 2) Baseline Water Consumption Worksheet – See **Appendix 3b**
- 3) Predominant Commercial Sectors in Florida & their Water Use Patterns – See **Appendix 3c**

Table 2 presents the updated water demand calculations based on the facility type and footage in the preliminary site plan. This report included irrigation areas such as landscape areas and retention basins into the potable water demand calculation. The revised Average Daily Demand (ADD) for the Imperial Center project is estimated to be 147,845 gpd, or 103 gpm; and Maximum Daily Demand (MDD) is 295,690 or 205 gpm, two times ADD.

Table 2: Water Demand Calculation – Imperial Center

Building ID (from Preliminary Site Plan)	Building Type	Size	(unit)	ADD per Unit (gpd)	ADD (gpd)	Der
Building A	Service Commercial	73,862	(sf)	0.15	11,079	0.17 A
Building B	Commercial / Food Court	37,084	(sf)	0.5	18,542	50
Building C	Exhibition Spaces	300,690	(sf)	0.025	7,517	Whol
Building D	Office/Warehouse	107,834	(sf)	0.052	5,607	0.06 A
Building E	Office/Warehouse	107,834	(sf)	0.052	5,607	
Building F	Office/Warehouse	107,834	(sf)	0.052	5,607	
Restaurant 1	Restaurant	9,000	(sf)	0.741	6,669	R
Restaurant 2	"	9,000	(sf)	0.741	6,669	
Restaurant 3	"	9,000	(sf)	0.741	6,669	
Restaurant 4 /Mart	"	9,000	(sf)	0.741	6,669	
Swimming Pool & River		125,738	(gal)		6,000	6" evapora 40' x 8
Night Market	Stands (no covered building)	70,000	(sf)	0.025	1,750	Whol

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Building ID (from Preliminary Site Plan)	Building Type	Size	(unit)	ADD per Unit (gpd)	ADD (gpd)	Der
Gas Station	Service Station	24	(pumps)		3,500	1 st B&C addition
Hotel w/ Restaurant	Hotel w/ Restaurant	286	(rooms)	180	51,480	0.20 /
Landscaping	From landscaping plans	94,613	(sf)		4,478	1,633,28
TOTAL ADD =					147,845 gpd => 103 gpn	
TOTAL MDD =					147,845 gpd x 2 = 295,6	

1) Landscaping Plans (JK Design & Associates) Received on 03/20/15 – **Appendix 3d**

▪ **HYDRAULIC ANALYSIS**

In order to meet the fire flow requirement at the Imperial Center, the previous technical memorandum proposed a ground storage tank with a booster pump station located near the project site. This same approach is recommended. Meanwhile, Imperial County Fire Department investigated the minimum required tank size and requested 1.7 MG storage volume (**Appendix 4** for the letter from Imperial County Fire Department). The fire department also expressed their concern about multi-story buildings including the eight story hotel and four story parking structure. Those buildings shall be equipped with separate privately owned and operated fire pumps to provide adequate pressure for firefighting operations and to meet adopted codes and standards.

The tank would be constructed at ground level and does not provide enough pressure to serve the area directly; therefore, a booster pump station is required to provide proper service pressure. The booster pump station will serve both the Imperial Center under various demand conditions and adjoining HPUD service areas. To maintain water quality within the tank, water should be cycled on a daily basis. The tank would be refilled during off-peak hours when demand is low, and the water treatment plant pumps can provide adequate pressure to the east end of its service area. When the tank is full, a flow control valve will shut off the intake pipeline to prevent overflowing. The booster pump station would then pump water out of the tank back into the system to maintain adequate pressures during peak demand periods. Pump controls would be provided such that water is not pumped back into the tank and allow operators to adjust pump run times and tank refill to manage tank water quality.

Table 3 presents the proposed tank refill scenario targeting one quarter of the tank volume, 425,000 gallon, to be drained and refilled every day. The existing 1,500 gpm pump station at the water treatment plant will refill the proposed tank during low demand night time. It is estimated to take between 5.2 and 5.7 hours to refill one quarter of the tank volume under either ADD or MDD conditions. Approximately 400 gpm must be drained from the tank during the remaining time to draw down the proposed tank. Under both ADD and MDD conditions, the proposed pump station will serve the Imperial Center and adjoining HPUD service areas. The actual pumping rate will be dictated by both demand and tank water quality. The proposed booster pump station is equipped with two VFD pumps, one duty and one standby, for operating flexibility and one high flow pump for fire flow conditions.

Based on the hydraulic analysis, the system is capable of meeting 3,000 gpm fire flow at 39 psi (**Plate 6** in **Appendix 5**) under the MDD 1,665 gpm at the ultimate build-out of the Imperial Center. The existing pump station at the treatment plant can replenish the proposed tank at 1,337 gpm during low demand periods and sustain a minimum of 35 psi within the service area. **Table 4** presents a summary of the hydraulic analysis results. Detailed hydraulic analysis results are presented in **Appendix 5**.

Table 3: Tank Replenishment Cycle and Pumping Flow

Required Daily Turn Over (assuming 100% Replenishment in 4 days)	1.7 MG / 4 days = 425,000 gal / day	
Existing Booster Pump Station in Water Treatment Plant	1,500 gpm	
	ADD	MDD
Existing HPUD service area	1,130 gpm	1,460 gpm
Imperial Center	103 gpm	205 gpm
Total Demand	1,233 gpm	1,665 gpm
Low Demand (10%) at Night	123 gpm	167 gpm
Tank Refill Flow	1,500 gpm – 123 gpm = 1,377 gpm	1,500 gpm – 167 gpm = 1,233 gpm
Required Time to Refill 425,000 gallon	5.2 hours	5.7 hours
Tank Draining Hour	24 hours -5.2 hours = 18.8 hours	24 hours -5.2 hours = 18.3 hours
Pumping Flow during day time to Drain 425,000 gallon	378 gpm	387 gpm

Table 4: Hydraulic Analysis Result with Proposed Water System Improvement

Scenario		Demand	Fire Flow	Residual Pressure @ Imperial Center	Description	Plate
Existing Demand	ADD	1,130 gpm	-	50.2 psi		Plate 3
	MDD	1,460 gpm	-	47.4 psi		Plate 4
With Imperial Center Demand	MDD	1,665 gpm	-	48.6 psi	High flow pump off	Plate 5
	MDD+FF	1,665 gpm	3,000	39 psi	Fire flow condition	Plate 6
	ADD+TR	1/10 of ADD 123 gpm	-	38.2 psi	Tank Refill at 1,337 gpm	Plate 7

▪ **PROPOSED WATER SYSTEM IMPROVEMENT**

The following off-site water system improvements are proposed:

- 1.7 MG welded steel water tank with altitude valve, separate inlet and outlet piping, fittings, seismic valve control, Flexextend seismic isolation spools, and tank mixing designed to the current AWWA D-100 standards
- Booster pump station with (2) 50-HP VFD pumps and (1) 50-HP high capacity fire pump, stand-by genset, metal shade structure, unit piping, electrical controls, SCADA/telemetry, valves, fittings, and all other appurtenances
- Site work for tank and booster pump station including site grading, retention basin (if needed), access road, fencing, and pavement.
- 12-inch diameter C-900 PVC inlet/suction pipeline with restrained joints from existing pipeline
- 18-inch diameter C-905 PVC discharge pipeline with restrained joints to existing pipeline

The proposed 1.7 MG Tank and a booster pump station will be located between Pitzer Road on the west, Hwy 111 on the east, Correll Road on the North and East Heber Road / Hwy 86 on the south. Depending on the final site location, the site may require a retention basin if adequate off-site drainage is not available for overflows or draining the tank for routine maintenance. The site would be approximately 1.7 acres with a retention basin and 0.9 acres without a retention basin. The retention basin was sized for a minimum of one quarter volume of the tank storage volume (**Appendix 6** for conceptual site plan with a retention basin).

For the fire service of multi-story buildings including the eight story hotel and four story parking structure, on-site privately owned and operated fire pumps shall be equipped to provide adequate pressure for firefighting operations in the elevated structures and meet adopted fire codes and standards.

▪ **COST ESTIMATE OF PROPOSED WATER SYSTEM IMPROVEMENT**

Table 5 presents the project cost estimate for the proposed offsite water system improvements.

Project soft cost includes the following:

- 15% of the total construction cost for construction contingency,
- 8% for design engineering including plans and specifications, construction surveying and mapping, geotechnical evaluation and report
- 2% for contract administration
- 8% for field inspection and nominal environmental documentation.
- Escalation, financing, interest during construction, legal, EIR/EIS, land acquisition, and R-O-W agent costs are not included.

Total construction cost is estimated to be \$3.8 million, and the project cost is \$5.0 million.

Table 5: Offsite Water System Improvement for Fire Flow Service at Imperial Center

DESCRIPTION	QUANTITY	UNIT	UNIT COST*	CONSTRUCTION COST
1.7 MG Steel Tank with Altitude Valve, Inlet and Outlet Pipings, Fittings, Seismic Valve Control, Flexextend, and Tank Mixing	1	LS	\$2,200,000	\$2,200,000
Booster Pump Station with stand-by genset, metal shade, unit piping, electrical control, SCADA, valves, fittings, and all other appurtenances	1	LS	\$1,340,000	\$1,340,000
Site work for Tank and Booster Pump Station including site grading, retention basin, access road, fence, and pavement.	1	LF	\$110,000	\$110,000
12-inch dia. C-900 PVC Water Pipeline and Restrained Joints from Existing Pipe, Pressure Test	200	LF	\$245	\$49,000
18-inch dia. C-905 DR-18 PVC Water Pipeline and Restrained Joints from Existing Pipe, Pressure Test	200	LF	\$275	\$55,000
Construction Cost				\$3,754,000
Total Project Cost ⁽¹⁾				\$4,993,000

*: Unit cost is based on non-prevailing wages.

⁽¹⁾ Total Project Cost includes : construction costs plus 15% for construction contingencies, 8% for design engineering including plans and specifications; construction surveying and mapping; geotechnical evaluation and report; 2% for contract administration; 8% for field inspection and nominal environmental documentation. Costs are based on Engineering News Record (ENR) Construction Cost Index Los Angeles, March, 2015 (ENR = 10995.27). Escalation, financing, interest during construction, legal, EIR/EIS, land acquisition, and R-O-W agent costs are not included.

- **WATER TREATMENT CAPACITY**

Based on information provided in the HPUD Water Distribution System Study, the existing water treatment is rated at a capacity of 2.0 MGD and HPUD's existing demand is approaching 80% of the plant capacity. With the ultimate development of the Imperial Center, an additional capacity of 0.15 MGD is required to meet average daily demand and 0.24 MGD to meet maximum daily demand. The available treatment plant capacity is estimated to be consumed by the final build-out of the Imperial Center.

- **CONCLUSIONS AND RECOMMENDATIONS**

The existing HPUD water distribution system is not capable of meeting fire flow requirements of the proposed Imperial Center at ultimate condition.

The proposed water system improvements (1.7 MG ground storage tank and booster pump station) will provide adequate fire flow capability to the Imperial Center.

The total project cost estimate for the proposed water system improvements is \$5.0 million.



May 12, 2015

Mr. Kuang Chang, R.A.
JWDA
8932 E. Mission Drive, Suite 101
Rosemead, CA 91770

**Re: Heber Public Utility District – Imperial Center – Phase 5 – Civil Plans –
THG # 744.061
Plan Check No. 2**

Dear Mr. Chang,

It has come to our attention that construction has commenced for the Imperial Center Phase 5 Development (Development). The Holt Group (Heber Public Utility District Engineers) has received an updated set of Improvement Plans for the Imperial Center Civil Plans dated February 10, 2015. However, we have not received responses for the major comments that we had provided in the November 26, 2014 plan check letter. On May 12, 2015 we received a copy of a Technical Memorandum with regard to the Fire Flow and Water Distribution Hydraulics. The Holt Group has reviewed the February 10, 2015 Improvement Plans as a re-submittal plan check. Please note that following are updated plan check comments for the Development.

1. Construction of the water utilities, sewer utilities, and storm drain utilities are to be in accordance with Heber Public Utility (HPUD) regulations, requirements, and approved improvement plans. The improvement plans are to be designed in accordance to the HPUD Standards and Details. All water utilities, sewer utilities, and storm drain utilities on private property are considered privately owned and are operated and maintained by Pacificland International Development (PID) and future owners, unless otherwise specified in this correspondence.

As part of the proposed Development, the owner is installing private water (including fire service) pipelines and utilities, sewer pipelines and utilities, and storm water pipelines and utilities located within the private properties. A service agreement between the

existing (and future) property owners and HPUD is required to be entered into prior to activation of the water, sewer and storm water utilities. The agreement will state that the water utilities, sewer utilities, and storm water utilities are privately owned and HPUD is not responsible for the operation, maintenance, repair and/or replacement of the utilities on private property. The agreement shall state that no other private utilities are to be connected without approval from HPUD. The agreement will state that the fire service water lines are to be used solely for fire purposes.

2. The current Improvement Plans illustrate a 10-foot HPUD Right-of-Way for all water pipelines and sewer pipelines. HPUD does not require the Right-of-Way for the water and sewer pipelines. Please omit the 10-foot HPUD Right-of-Way for the water pipelines and sewer pipelines.

HPUD request that a 5-foot buffer easement be provided for the following:

- Water utilities:
 - water meter service for inspection and repairs;
 - backflow preventers for inspection;
 - valves for inspection and exercising; and
 - fire hydrant assemblies (from tee connection to fire hydrant) for inspection, repairs.
- Sewer utilities:
 - Sanitary sewer manholes for inspection;
 - cleanouts (located outside of buildings) for inspection; and
 - grease interceptors for inspection.
- Storm water utilities:
 - storm water manholes for inspection; and
 - storm water catch basins for inspection.

It is requested that easement documents for the utilities be prepared by PID for HPUD's review and comment/approval.

3. The Improvement Plans do not illustrate any water service connections for landscape irrigation to HPUD owned water pipelines for Lot 1. The Improvement Plans illustrate the design of a raw water pipeline entering the south side of Lot 1. It is assumed the raw water pipeline is water provided from the Imperial Irrigation District's (IID) Alder canal, which is located west of the project. The raw water pipeline provides water to an irrigation system (storage and pumping). HPUD shall require for Lot 1 to have a dedicated landscape water service as connected and served by HPUD and not IID.

The Improvement Plans do not illustrate any water service connections for landscape irrigation to the retention basins located west side of Yourman Road. HPUD shall require that each of the three Lots (10, 11 and 12) to have its own landscape water service as connected and served by HPUD and not IID. Please note that the irrigation pipeline across Lots 6, 7 and 8 was an exemption to HPUD regulations and will not be allowed for Lots 10, 11 and 12.

HPUD shall require for all service connections including landscape water service be provided by HPUD. Shall the need for domestic and landscape water use be required, then a dedicated domestic water service and a dedicated landscape water service shall be connected and served.

4. The Improvement Plans illustrate the design of a new 6-inch diameter fire service pipeline connection at Lot 12. There is an existing 8-inch diameter fire service pipeline in Lot 9, located on the west side of Yourman Road. The proposed 6-inch diameter fire service pipeline connects to the existing 8-inch diameter fire service pipeline in Lot 9, and loops along the west side of Lots 10, 11, and 12. The new 6-inch diameter fire service connection has an above grade backflow preventer with isolation gate valves. The above

grade backflow preventer service is located along Yourman Road. The 6-inch diameter fire service pipeline is not metered.

5. The Improvement Plans illustrate the design of new 8-inch diameter fire service pipelines through Lot 1. The 8-inch diameter water fire service pipeline connects to the Yourman Road 12-inch diameter water pipeline at two different locations (south side of Lot 1 and westerly side of Lot 1 at distance of 430 feet south of Abatti Road). Each of the two new 8-inch diameter fire service connections has an above grade backflow preventer with isolation gate valves. The above grade backflow preventer services are located along Yourman Road. The 8-inch diameter fire service pipelines are not metered. The 8-inch diameter fire service pipeline loops around all of the proposed buildings (buildings A through F). The 8-inch diameter fire service pipeline also routes between proposed buildings A, B and C. The 8-inch diameter fire service pipeline route is adjacent to each of the proposed buildings (buildings A through F). Each of the buildings (A through F) has a 6-inch diameter fire service pipeline connection. There are fire hydrants and Fire Department Connection (FDC) points throughout the parking lot areas.

The 8-inch diameter fire service pipeline shall be connected to the 12-inch diameter distribution water pipeline that dead ends just west of the Abatti Road and Alder Drain intersection with a Backflow Preventer. Connection to the distribution water pipeline will adequately loop the Fire Service Pipeline.

6. In regard to Hydraulic Analysis of the HPUD Water Distribution System ability to provide Fire Flow, pressure and volume for the Development. HPUD is in receipt of the Imperial Center Water System Improvement for Fire Flow Technical Memorandum, dated April 29, 2015. It is understood that a Ground Storage Reservoir and Booster Pump Station will be required for the Development. It is also understood that HPUD will be required to be assist in operation of the Ground Storage Reservoir and Booster Station. It is requested

that HPUD be involved in the planning and design phases of the Ground Storage Reservoir and Booster Station.

7. The Improvement Plans illustrate two (2) 6-inch diameter water connections for domestic use on Lot 1. The water pipelines are connected at different locations (same as fire service pipeline connections). One connection location is on the south side of Lot 1, and the second connection location is on the westerly side of Lot 1 at distance of 430 feet south of Abatti Road. Each of the two (2) proposed 6-inch diameter domestic water service connections has an above grade backflow preventer with isolation gate valves. The above grade backflow preventer services are located along Yourman Road. The 6-inch diameter domestic water service pipelines are not metered.

The 6-inch diameter domestic water service pipeline loops around and between some of the proposed buildings (buildings A through F). Each Building has a minimum of one water service connection that is metered. There are a total of 13 2-inch diameter water service connections that are metered. There are a total of eight (8) 2.5-inch diameter water service connections that are metered. There is one (1) 3-inch diameter water service connections that are metered. The water meters connections for each perspective building are tabulated below:

- Building A – two (2) 2.5-inch diameter water connections
- Building B – eleven (11) 2-inch diameter water connections
- Building B – one (1) 2.5-inch diameter water connections
- Building C – two (2) 2.5-inch diameter water connections
- Building D – one (1) 2.5--inch diameter water connection
- Building E – one (1) 2.5-inch diameter water connection
- Building F – one (1) 2.5-inch diameter water connection
- Parking Structure / Pool – two (2) 2-inch diameter water connections
- Water Feature/Splash Areas – one (1) 3-inch diameter water connections

HPUD does not have a 2.5-inch water service connection. It shall be required to select a 2-inch diameter service or 3-inch diameter service. Please indicate which size water service connections will be installed.

Building B has eleven (11) 2-inch diameter water service connections to a single 3-inch diameter water pipeline. The connections are on the north side of Building B. Is the 3-inch diameter pipeline adequately sized for the six (6) 2-inch diameter water service connections?

It is suggested for PID's health and safety that 2-inch above grade backflow preventer be installed immediately downstream of each water meter enclosure.

8. The Improvement Plans illustrate two (2) 8-inch diameter sewer service connections for domestic use on Lot 1. The sewer service pipelines are connected at different locations. One connection location is on the south side and west of Building B, and the second connection location is on the north side and west of the Parking Structure. The sewer service located north and west of the Parking Structure requires the construction of a new manhole.

The 8-inch diameter sewer service pipeline routes between some of the proposed buildings (buildings A through F). Each Building has a minimum of one sewer service connection. There are a total of nine (9) 4-inch diameter sanitary sewer service connections. There are a total of four (4) 6-inch diameter sanitary sewer service connections. The sewer service connections for each perspective building are tabulated below:

- Building A – three (3) 4-inch diameter sewer service connections
- Building B – two (2) 4-inch diameter sewer service connections
- Building B – one (1) 6-inch diameter sewer service connections
- Building C – three (3) 4-inch diameter sewer service connections

- Building D – one (1) 6-inch diameter sewer service connection
 - Building E – one (1) 6-inch diameter sewer service connection
 - Building F – one (1) 6-inch diameter sewer service connections
 - Parking Structure / Pool – one (1) 4-inch diameter sewer service connections.
9. The Improvement Plans illustrate storm drain facilities designed throughout the project site. The all storm drain water is conveyed to the Retention Basin (with Parking Area) located on the north side of Lot 1. Storm water from the Retention Basin is then conveyed to Imperial Irrigation District's (IID) Alder Drain, via an existing Pump Station.

It is requested that IID Encroachment Permit and or approval of discharge into IID Alder Drain be provided.

The proposed asphalt pavement surface for the Retention Basin is not acceptable for HPUD. The proposed asphalt pavement is to be implemented and maintained at PID's expense and shall be subject to State Storm Water Regulations. Parking within the Retention Basin will accumulate oils and grease, which are not allowed under storm water discharge regulations. HPUD does not approve of the asphalt pavement surface for the Retention Basin.

Design information and details are to be provided for the Storm Water System. A cross-section detail for the Retention Basin is to be included in the Design Plans. A cross-section detail (hydraulic profile) of storm water flow from the Retention Basin to the IID Alder Drain is to be provided. The existing agricultural pump station is not be used as a storm water facility. A new pump station shall be required. The new pump station's design shall include a blow-up detail (including pump, piping, control and electrical information).

Lighting, fencing, and landscaping, improvement plans are to be provided for any Retention Basin, which should include the large retention basin. The improvement plans shall include lighting, fencing, and landscaping.

10. It is understood that a geotechnical report was prepared for the Project. It is requested that the geotechnical report be provided for review with regard to utilities and earthwork.
11. Where does Pool, Kid Pool and Splash Area drain into? If draining/flushing into sewer system, then HPUD would like to review and consider regulations to be incorporated for draining/flushing into HPUD's sewer collection system.
12. Please find attached the Improvement Plans with design review comments noted in red ink. It is requested that the redline comments be addressed.
13. The following shall be **conditions of approval** as established by HPUD.
 - A. If HPUD observes a leak in the private water pipeline, from the Right of Way point of connection to the water meter service, after a reasonable attempt to have the private property owner repair the water pipeline leak, then HPUD shall be have the right to shut off the water pipeline serving the private pipeline. The private water pipeline shall be shut off at the Right-of-Way point of connection. HPUD will re-activate the pipeline when the private property owner repairs the water pipeline leak to the satisfaction of HPUD.
 - B. The new fire service pipelines are to be hydrostatically tested, leak tested and disinfected in accordance with HPUD Standards prior to use.
 - C. The new domestic water service pipelines are to be hydrostatically tested, leak tested and disinfected in accordance with HPUD Standards prior to use.

- D. The Operation and Maintenance (O&M) cost for a Ground Storage Reservoir and Booster Pump Station facility is to be paid by a Landscaping and Lighting District.
- E. The new sanitary sewer service pipelines be inspected and tested in accordance with HPUD Standards prior to use.
- F. The new storm drain facilities be inspected and tested in accordance with HPUD Standards prior to use.
- G. The Improvement Plans illustrates the use of Food Service Establishments and businesses generating waste applicable to HPUD Fats, Oil and Grease (FOG) program. As sewer waste generated by Food Service Establishments and businesses enter the HPUD sewer collection system, HPUD regulates and enforces a Fats, Oil and Grease (FOG) program as required by the State Water Resources Control Board. As such, the Food Service Establishments are required to abide by HPUD's FOG program Ordinance.

Please contact me if you have any questions.

Sincerely,

James G "Jack" Holt, P.E.
HPUD District Engineer

Cc: Laura Fischer, General Manager, HPUD
HPUD Board, HPUD
Jose J. Avila, P.E., Vice President, BJ Engineering & Surveying, Inc.
Jeff Lamoure, Deputy Director of Environmental Health, County of Imperial Health Department
Bill Brunet, County of Imperial Public Works Department Director
Jim Minnick, County of Imperial Planning and Development Services Department Director
Tony Rouhotas, County of Imperial Fire Department Fire Chief
Robert Malek, County of Imperial Fire Department Fire Marshal

