CIVIL ENGINEERING DUE DILIGENCE
REPORT

For
59th STREET REUSE PROJECT
59th STREET BETWEEN S STREET AND FOLSOM BOULEVARD
SACRAMENTO, CALIFORNIA

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1.0 Introduction

1.1 Overview
Stonebridge Properties retained the services of Cunningham Engineering Corporation (CEC) to assist in performing a civil engineering due diligence evaluation of the now vacated SMUD corporation facility site located along 59th Street between S Street and Folsom Boulevard in Sacramento. The project area consists of two separate sites, a north site that is located to the north of the Regional Transit (RT) tracks, and a south site that is located to the south of the RT tracks. An initial surveying effort related to this project involved preparing a color orthophoto and boundary exhibit of the project site – see Appendix A – Boundary Exhibit (by Morrow Surveying).

The new “use” of the proposed project site is yet to be determined and thus the findings discussed herein are generally focused on identification of existing conditions and related issues which could affect future redevelopment of the site. CEC has evaluated several key components that may have an impact development of the property. The evaluation has included review of utilities, drainage/flooding and surface improvements. Our findings to date are summarized in the sections below.

1.2 Data Collection
As part of our due diligence efforts, CEC researched, obtained and reviewed the following documents:

- Available City as-built roadway improvement plans
- City base utility maps
- Regional Transit as-built plans
- Dry utility base maps from the following public utility agencies
  - SMUD Electric
  - PG&E
- CEC requested dry utility base maps from the following public utility agencies, but to date have not received the requested information:
  - SMUD Gas
  - Comcast

2.0 Water System

2.1 Existing Condition
The project site is within the City of Sacramento water district boundary. The City has multiple public water mains adjacent the project site, as indicated in Appendix F – Water Map 2014. According to the City
water map, there are parallel water pipes within 59th Street adjacent to the site, including a 24” transmission main and a 6” distribution main. A 36” transmission main is also indicated on the south side of the RT track alignment, with an additional 6” distribution main located along the western property line of the northern SMUD site. It is not clear if the 6” distribution main along the western property line or the 36” transmission main is physically located within the project boundary or on the adjacent properties, though based on review of the project boundary exhibit, there are no existing easements on the site for either main. **Depending on actual location of these water mains, the City of Sacramento may condition the project to provide water easements over their existing water mains.** Per City of Sacramento design guidelines, the minimum recommended easement width for distribution mains is 15 feet.

Based on the City water map, it appears that the existing SMUD site is currently served by multiple water services from the 6” distribution mains located within 59th Street and the existing 6” distribution main located along the western property line. CEC has requested the size, location and type of recorded existing utility services from the City of Sacramento Department of Utilities (DOU), but to date we have not received the requested information. The base map also indicates a private 6” looped onsite (SMUD site) water system.

CEC has coordinated two separate water supply tests for the project site with DOU, see Appendix D – Water Supply Test. One test represents the existing 6” distribution main within 59th Street and the second represents the existing 6” distribution main along the western property line. CEC coordinated a meeting with DOU on January 14, 2016, see Appendix J – City DOU Meeting Minutes.

### 2.2 Site Development

As discussed, at this time the proposed site development program is not known and therefore discussions within this section are limited to general requirements for developments within the City of Sacramento.

Depending on the proposed project water flow requirements, this project may be required to perform some level of public water main improvements to increase the available pressures and flows to serve the development. This issue was discussed with DOU during the January 14, 2016 meeting, and one possible improvement strategy may be to remove and replace portions of the existing 6” distribution main located within 59th Street with a larger diameter pipe. The limits and details of this potential solution would be studied in conjunction with a specific proposed...
project design. If the proposed site improvements include the creation of public streets, then public water main improvements within the public streets would also be needed.

Typical single family residential homes require a single water service to provide domestic, irrigation and fire water. Typical developments, other than single family residential homes, require separate irrigation, domestic and fire water services. Each legal lot will be required to be provided with at least one domestic water service, since sharing of domestic water services between legal lots is not allowed. Based on review of the existing public water infrastructure, it is envisioned that the proposed project will likely be supplied from facilities within 59th Street.

Based on review of the available RT as-built drawings, there appears to be a water line crossing beneath the existing RT tracks, approximately 700 feet to west of 59th Street. This crossing is noted as a 14” steel casing. At this time it is not known if this existing water line crossing will be required to serve the project development, but the casing could potentially be utilized to provide a looped system from the north south sites in the future.

3.0 Combined Sewer System

3.1 Overview of Combined Sewer System
The City of Sacramento utilizes two types of underground pipe network systems to convey storm drainage and sanitary sewer flows; the combined sewer system (CSS) and the separated system.

Within the CSS, a single pipe is used to convey both storm drain and sanitary sewer flows. The CSS flows are directed to the regional waste water treatment facility where they are treated prior to discharge.

The separated system utilizes separate storm drain and sanitary sewer pipe network systems to convey their respective flows. Within the separated system, only the sanitary sewer flows are directed towards the regional waste water treatment facility for treatment, while the storm drain flows typically drain directly into the Sacramento/American Rivers without public treatment.

3.2 Existing Site Condition
The project site is located on the boundary between the CSS and separated systems, see Appendix E – City of Sacramento Combined Sewer Systems. Review of this map indicates that a portion of the project site is mapped within the CSS system, with the remainder of the site mapped within the
separated system. In comparison, review of the City of Sacramento Drainage/Sewer maps (see Appendix G – Drainage/Sewer Map 2015) appears to indicate that the majority of the site drainage is currently served by the separated system.

On January 20, 2016 CEC discussed this apparent discrepancy with Mark Dilley from the City of Sacramento Department of Utilities (DOU). Mark informed our office that he had discussed this issue with Richard Dalrymple, DOU hydraulic modeler of the CSS. Richard informed Mark that the City CSS model does not account for any of the site storm drain flows, and the separated system only accounts for approximately half the site storm drain flows. It is not known if the remainder of the site storm drain flows are accounted for in one of the models not immediately apparent to Richard, or if half of the site flows simply are not included within any of the City’s models.

At this time this project has not been submitted to the City of Sacramento, and therefore the City has not created an account to bill staff time towards. Until an account is created allowing City staff to bill time towards the project, DOU does not plan on resolving the model discrepancy and or preforming additional analysis related to the site.

Review of the City Drainage/Sewer map also indicates that a portion of the commercial site to the north of the SMUD north site also drains onto the SMUD property. There do not appear to be easements of record to account for this drainage.

### 3.3 Site Development

According to conversations with Mark, it is the City’s priority to re-direct existing storm drain flows currently served by the CSS to the separated system. We discussed this approach with Mark during the January 14, 2016 meeting and voiced our concerns that although re-directing the flows from the CSS to the separated system would decrease the existing flows on the CSS it would increase the flows on the separated system. It was explained to Mark the project would not want to be conditioned to provide on-site detention to mitigate for this re-direction of flows. Mark stated it was his opinion that re-direction of flows is a benefit to the city which outweighs the increased flows on the separated system, and this project should not be required to provide on-site detention to mitigate for the re-direction of flows. Unfortunately the final project conditions pertaining to the potential re-direction of flows will not be provided by Mark and, at this time, this matter is unresolved.

### 4.0 Sanitary Sewer
4.1 Existing Condition
The existing site is currently served by a 10” public CSS mainline located along the westerly property line of the SMUD north site, a 12” CSS mainline located on the westerly portion of the SMUD south site, and an 8” CSS mainline located within 59th Street. It is not clear if the 10” main on the western property line or the 12” main south of the RT tracks is located within the project boundary or on the adjacent properties.

Based on review of the project boundary survey, there are no existing site easements for the existing public 10” or 12” CSS mainlines. Depending on actual location of these CSS mains, the City of Sacramento may condition the project to provide utility easements over their mains. Per City of Sacramento design guidelines, the minimum recommended easement width for CSS mains is 15 feet.

4.2 Site Development
Although proposed post-development sewer flows are not known at this time, it is assumed they will exceed the existing site sanitary sewer flows. Unfortunately at this time the City of Sacramento cannot provide information on the capacity of the CSS. Because the site sanitary sewer flows discharge into the CSS, the project will be required to pay the City CSS mitigation fees, with credit provided for existing flows.

Amandeep Singh with Sacramento Area Sewer District provided an email on 1/20/2016 stating that Regional Sanitary has adequate capacity at the treatment plant to serve the proposed project development.

5.0 Storm Drain

5.1 Existing Condition
Based on review of the City Drainage/Sewer maps, the existing project site is predominately served by the separated system via a 66” public storm drain main within 59th Street and a 12” public storm drain main located within 55th Street. In addition to these two public storm drain mains, there is an existing 12” CSS mainline located within the western portion of the SMUD south site.

See Appendix H – FEMA FIRMS, for FEMA flood mapping information. Firm Map Numbers 06067C190H and 06067C0195H effective dates August 16, 2012, locate the project site within Zone X. Zone X are areas determined to be outside of the 0.2% annual chance floodplain. Within Zone X, there are no FEMA elevation requirements.
Our office asked DOU about historical flooding in this area. In response, the City provided a copy of the Red Dot map (see Appendix I – Red Dot Map) which indicates areas of reported flooding during the January 1995 storm event. Based on review of the Red Dot map, there were no reported incidents of flooding immediately adjacent the project site. There is however flooding indicated along Folsom Blvd and at 54th Street.

In addition to the Red Dot map, the city provided information from their SSWMM model for the separated system. Based on the results of the City’s SSWMM-model, there appears to be shallow flooding during the 10 year storm at Christopher Way and Q Street, and an approximate flood depth of 1.28 feet during the 100 year event at this location. Within 59th Street, the 100 year storm event flood depth is approximately 0.21 feet deep.

5.2 Site Development
As discussed in Section 3.0, it is the city’s priority to redirect existing storm drain flows currently served by the CSS into the separated system. Based on review of the City Drainage/Sewer maps, it appears most of the site is currently served by the separated system with only the southwestern portion of the south site being served by the CSS. Evaluation of the proposed site improvements, existing main line inverts, as well as potential mitigation requirements will need to be studied prior to determining if this project will be able to redirect existing flows from the CSS to the separated system as desired by the City.

The City of Sacramento’s drainage standards includes a “Do No Harm” policy. Per information provided from Martin Farber, City of Sacramento DOU, the City will require this project to demonstrate that the 100-year post project site discharge to the receiving City drainage system is no greater than the pre-project discharge. It is assumed the proposed site impervious area will be less than existing, and therefore the total site pre-development flows are assumed to be less than existing.

On a typical project, when the proposed site development has less impervious area than existing, complying with the “Do No Harm” policy can be achieved without the need for on-site detention; however, as discussed is Section 3.0 above this project is not typical. Because the City can currently only account for half of the site drainage flow in their model and the City’s desire to re-direct flows, at this time we are not able to determine the specific requirements for complying with the “Do No Harm” policy.

6.0 Stormwater Quality
6.1 Overview of City Requirements
The City of Sacramento currently follows the Stormwater Quality Design Manual for the Sacramento and South Placer Regions dated May 2007 for the stormwater quality requirements. Based on the requirements of this manual, this project will be required to provide post-construction stormwater treatment. Current approved treatment methods include vegetated swales, stormwater planters, pervious pavement and underground mechanical systems.

The City of Sacramento is in the process of adopting new stormwater quality requirements. At this time the City has not issued a date of adoption of those new standards.

7.0 Surface Improvements

7.1 Existing Condition
The project site is bound by 59th Street to the east, single family residential to the west, a commercial/retail site to the north and the Highway 50 on-ramp to the south. Regional Transit (RT) tracks run through a portion of the site, effectively dividing the site into a northern portion and southern portion.

Existing site access for the northern portion of the site is provided from private driveway cuts on 59th Street. Although ‘O’ Street and ‘P’ Street provide dead-end connections to the western side of the site from 55th Street, these existing street connections are used to access the site. The northern most driveway appears to be a shared driveway with the adjacent commercial/retail site. The southern portion of the site is accessed from a private driveway connection off 59th Street.

There is an existing RT vehicular grade crossing connecting the northern portion of the site with the southern portion of the site.

7.2 65th Street Station Area Study
The City of Sacramento City Council adopted a Resolution on October 26, 2010 (see Appendix K – Resolution No. 2010-622) creating a comprehensive transportation plan which included a portion of the project frontage. Based on review of page 4 and cross section 6 on page 8 of the Resolution, the project site may be conditioned by the city to dedicate Right of Way along 59th Street for the construction of street improvements identified in the Resolution. It is not known if the City
would condition this project to construct the improvements identified in the Resolution and/or dedicate of Right-of-Way.

7.3 Site Access
At this time the proposed site development is not known and therefore discussions within this section will be limited to a discussion on general strategies for proposed site access.

The City of Sacramento has not been very flexible in deviating from their design standards for public improvements. Therefore, it is recommended that all proposed public improvements either follow the City standards for public street design (cross sections, driveway widths/locations/separations, etc.) or the project entitlement documents should clearly identify and gain approval to deviate.

There are a number of challenges and opportunities associated with site access that should be evaluated as the project design progresses. The following related issues come to mind:
- Connection and/or access to 55th Street.
- Existing RT grade crossing (possible grade separated) connection between sites.
- Possible relocation of RT station.
- Multi-mode access (pedestrians, bicycles, vehicles, etc.).
- Driveway connections.
- Common shared use driveway with the commercial/retail site to the north.
- Existing 59th Street mid-block pedestrian connection.
- Connections to surrounding uses.

8.0 Dry Utility Improvements

8.1 Existing Condition
Although this civil due diligence report excluded evaluations pertaining to dry utilities, review of the agency provided dry utility base maps identified two existing conditions which could potentially affect site development.

The PG&E gas map (see Appendix L – PG&E Gas Map) indicates an existing gas line served from P Street and running along the northern property line. This existing gas line appears to provide gas service to the northern retail site. Although there are no existing gas easements shown on the boundary survey, if this existing gas line is used to provide service to the northern retail center and is currently located on the project site, re-development of the site may need to accommodate a continued PG&E
pipe alignment and easement.

The SMUD provided base map (see Appendix M – SMUD Utility Map) appears to indicate existing electrical lines routed through the site providing service to the northern retail center. Although there are no existing SMUD easements shown on the boundary survey, if this existing electrical line is used to provide service to the northern retail center re-development of the site may need to accommodate a continued SMUD service alignment and easement.