Memorandum
Department of Public Works

TO: Michael O. Geisel, P.E.
City Administrator

FROM: James A. Eckrich, P.E.
Public Works Dir. / City Engineer

DATE: January 20, 2021

RE: Wilson Avenue Sidewalk

On November 5, 2020 the Planning and Public Works Committee directed City Staff to determine the cost and feasibility of constructing a missing section of sidewalk on the west side of Wilson Avenue north of Buchholz Mortuary. After investigating the matter, the Public Works Staff believes that in order to fill this sidewalk gap (approximately 70 feet) we would need to construct approximately 200 feet of sidewalk at a cost of $48,000. As detailed in the attached memorandum from Senior Civil Engineer Jeff Paskiewicz, we have concerns regarding the sidewalk construction related to available right of way and downstream erosion. In order to ensure the work can occur within the existing public right of way we will need to obtain survey data, which is included in the cost above. Depending upon the survey, we may need to acquire temporary or permanent easements which would likely necessitate an additional cost. That said, it *appears* at this time that the project can be constructed within existing right of way.

The missing section of sidewalk was likely never constructed due to the existing storm water drainage path in that area. In order to accommodate the storm water drainage, we are proposing the construction of a "scupper" which will allow water to pass underneath the proposed sidewalk. Photos of existing scuppers are contained within the attached memorandum from Senior Civil Engineer Jeff Paskiewicz. Mr. Paskiewicz's memo also details erosion concerns downstream from the proposed sidewalk. However, because we are not proposing a change to the drainage pattern nor increasing the amount of runoff, there are no plans to address the erosion problem (which is at least partially located in Clarkson Valley) unless directed by PPW or City Council.

If the Planning and Public Works Committee determines that this project should be constructed, it could proceed in one of two ways:

1) Direct Staff to include the sidewalk project in the 2022 Capital Projects Budget submittal. If this direction is chosen Staff will acquire the necessary survey data in 2021 using existing budgeted funds.
2) Approve a 2021 Budget Amendment in the Capital Projects Fund in the amount of $48,000.

Should you have questions or require additional information, please contact me. Otherwise, I will prepare a short presentation, with photos, for the Planning and Public Works Committee.

Action Recommended

This matter should be forwarded to the Planning and Public Works Committee for consideration. Should the PPW Committee determine that the sidewalk gap should be filled, it should determine whether the project should be constructed in 2021 or 2022. If the project is to be constructed in 2021, the matter should be forwarded to the full City Council for authorization of a Budget Amendment in the amount of $48,000. If the project is to be constructed in 2022, the PPW Committee should direct Public Works Staff to include this project in the 2022 Capital Projects Budget submittal.

Please forward to PPW for review and recommendation.

2021-1-20

Memorandum
Department of Public Works

TO: James A. Eckrich, PE - Director of Public Works/City Engineer

FROM: Jeff Paskiewicz, PE – Senior Civil Engineer JSP

DATE: January 20, 2021

RE: Wilson Avenue Sidewalk Gap

Per direction from the Planning and Public Works Committee at the November 5, 2020 meeting, Staff was directed to look into the feasibility of constructing a 5 foot wide sidewalk along the western side of Wilson Avenue to complete a gap between Buchholz Mortuary and the Sea Beauty Farms subdivision.

The gap is primarily located along the frontage of 2153 Wilson Avenue which is located in Clarkson Valley. This is a 39.7 acre undeveloped tract of land.

The actual gap in sidewalk that currently exists is approximately 70 feet in length. There are sections of the existing sidewalk on both sides of the gap that would require replacement should new sidewalk be constructed to fill the gap. The total length of sidewalk necessary to fill in the gap and replace deficient sidewalk slabs equates to approximately 200 feet. Please see the attached photos of the existing sidewalk.

For Staff's analysis, the City's GIS information was utilized. While the GIS information depicts the property lines and aerial photos, they are not depicted to the accuracy level necessary to determine the exact location of ROW and extent of easements that may be needed. Please keep in mind that the easement needs discussed below, and estimates, are based on this information. In order to accurately determine property line locations, it would be necessary to hire a land surveyor to stake the existing property lines.

The area in which the gap exists contains a paved approach and asphalt drive that are remnants of the old Wilson Avenue alignment. The right of way was vacated in 2014 and there is currently an access easement over the drive that provides access rights to 2153 Wilson Avenue. The paved approach and a portion of the asphalt drive will require removal and replacement to facilitate construction of the sidewalk.

The gap in the sidewalk is located in topographic low point with approximately 1.09 acres tributary. A map of the storm water tributary area is attached. During a 15-year, 20 minute storm event this area would generate a flow of approximately 2.57

cubic feet per second. The flow is large enough that it would not be allowed to flow over the sidewalk and must be addressed by other means. Currently, storm water runoff flows overland and into a channel located on 2153 Wilson Avenue. The channel is incised and the banks are steep and unstable. Storm water runoff flows over the channel bank and has created a sizable head cut. The attached photos depict the existing drainage way conditions. Based on the current channel conditions, it is difficult to identify a clean starting and stopping point for stabilization of the existing banks. The erosion is something to consider as part of any sidewalk construction and options. It should be noted that the addition of the sidewalk would not change the drainage characteristics as storm water would still discharge to the same point.

Based on field observations, electric and communications are overhead along the west side of Wilson Avenue, but the Buchholz Mortuary plans indicated underground telephone through that same area. That same plan also indicates a gas line along the western edge of Wilson Avenue. GIS does not indicate water main in the area but there is a fire hydrant on the south side of the mortuary entrance. Utility locations would need to be more accurately determined as the proposed options for addressing storm water could have an effect.

As part of construction of a sidewalk, it will be necessary to remove areas of honey suckle and brush. Currently, no maintenance is required in this area, but after the existing honey suckle and brush is removed these areas would be sodded with turf grass that would require mowing. While these will not be large areas, this is something to note as it will need to be addressed.

The key aspect to completing the sidewalk gap will be properly addressing storm water runoff. Staff analyzed two options for addressing this. One option involves construction of an area inlet and a piped storm sewer and the other option is a concrete scupper. The concrete scupper would allow drainage under the sidewalk and then maintain the existing overland flow path. The scupper option carries with it less risk for utility conflicts as excavation for storm sewer pipe is not required. The storm sewer option would also require easements where the scupper option could be constructed entirely within ROW. When comparing the two options from an estimated cost perspective, the cost estimates are within a few thousand dollars of each other. The scupper option would not require MSD review and approval. With costs being close to equal, and the scupper option not requiring offsite easements or MSD approval and less chance for utility conflicts, the scupper option is the more favorable option. Concrete scuppers were utilized on the Pfizer Office/Laboratory project along the Olive Blvd. frontage and on the Schoettler Road Bridge project along the eastern side of Schoettler Road. Photos of the concrete scuppers along with the details are attached.

When considering the installation of a scupper, the condition of the existing channel erosion as discussed above can be approached in one of two ways.

Option 1 would maintain the existing separation between the edge of pavement and sidewalk which is approximately 15 feet. This option would also address the channel erosion located on private property which is associated with the drainage area for the sidewalk. It should be noted that by constructing the sidewalk the drainage

characteristics are not being altered and the City would not be obligated to address the current channel erosion. This is being included in the analysis should it be decided to address the channel erosion outside the ROW. In order to address the channel erosion, a rock blanket would be required between the downstream side of the scupper and the existing channel. It would be necessary to regrade a portion of the channel bank to provide a stable overland drainage path for storm water flows. In order to accomplish this, a permanent drainage easement along with temporary construction easements would be needed from 2153 Wilson Avenue. Easement acquisition can be a time consuming endeavor should the existing property owner not be willing to grant the necessary easements. With this option it would be necessary to contract with an engineering consultant for topographic survey, construction plans, and creation of easement documents.

Option 2 would shift the alignment of the sidewalk closer to the edge of pavement thereby decreasing the separation between the sidewalk and pavement from 15 feet to 5 feet. The area between the downstream side of the scupper and ROW line would be rock lined to decrease the erosive potential of the storm water runoff. Under this option, no improvements would be made outside the ROW. This option excludes any improvements to the existing channel conditions located on private property. This option eliminates having to acquire easements as, based on GIS data, all the work would be contained in the ROW. It would be necessary to hire a land surveyor to stake the existing property corners to verify locations. For this option Staff could compile general design documents from which the project could be constructed.

Detailed estimates for both scupper options are attached and a summary for each is listed below.

Option 1 - Scupper

Construction	$50,317
Engineering	$23,000
Easements	$3,617
Contingency (15%)	$11,540
Total	$88,474

Option 2 - Scupper

Construction	$36,125
Surveying	$5,000
Contingency (15%)	$6,169
Total	$47,294

cc: Zach Wolff, Assistant City Engineer

Scupper at Pfizer Office/Laboratory Along Olive Blvd.

Scupper on East Side of Schoettler Road south of the Schoettler Road Bridge.

Eroded Banks of Existing Drainage way.

Top of Eroded Bank Showing Direction of Surface Flow.

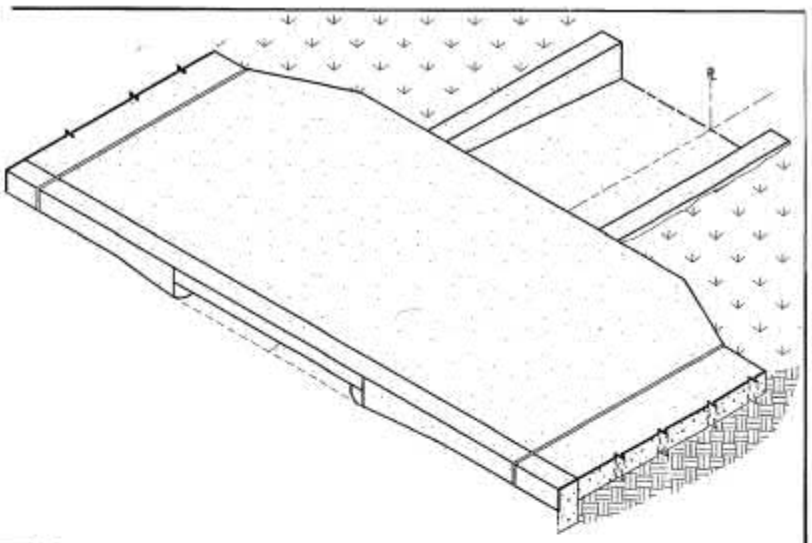
Unstable Bank of Existing Drainage Way. Looking From Flow Line of Drainage Way.

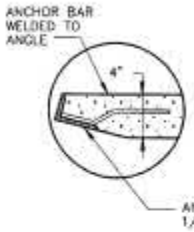
Existing Sidewalk on Buchholz Mortuary.

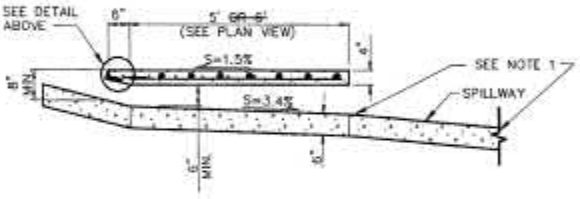
Existing Access Drive to 2153 Wilson Ave.

Existing Sidewalk Termination Point along Sea Beauty Farm.

Concrete Approach and Existing Sidewalk Looking North From Buchholz Mortuary.





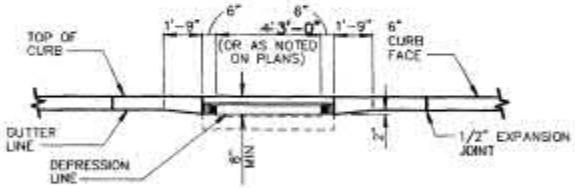


SECTION D–D

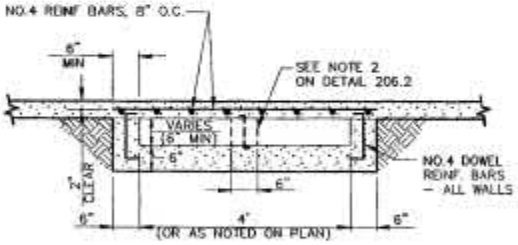
NOTES:

1. TRANSITION TO SPILLWAY/CHANNEL AS PER APPROVED PLANS.
2. A CENTER WALL SHALL BE INSTALLED IN SCUPPERS WIDER THAN 4' OR IF MORE THAN 1 SCUPPER IS BUILT IN SERIES.
3. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER, A.S.T.M. D-1751.
4. UNLESS OTHERWISE NOTED, CONCRETE SHALL BE ~~CLASS "B" PER SECTION 725.~~ NON-REINFORCED, f'c=4 KSI w/ 4% AIR ENTRAINING.

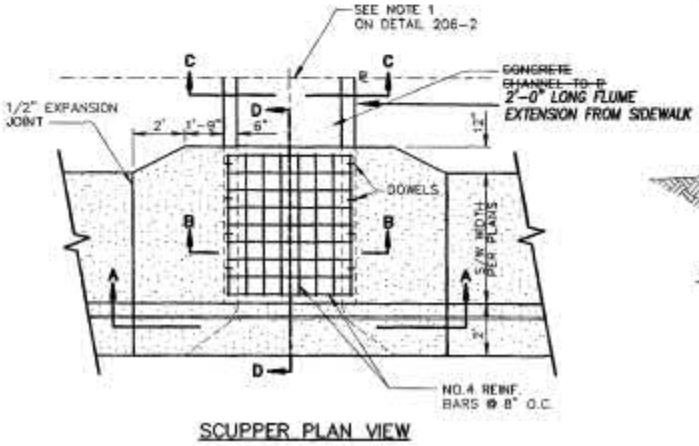
CONCRETE SCUPPER



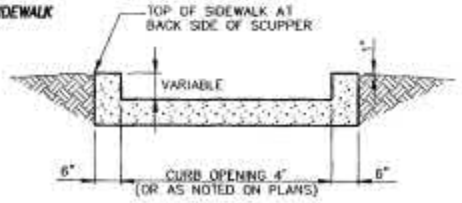
SECTION A–A



SECTION B–B



SCUPPER PLAN VIEW

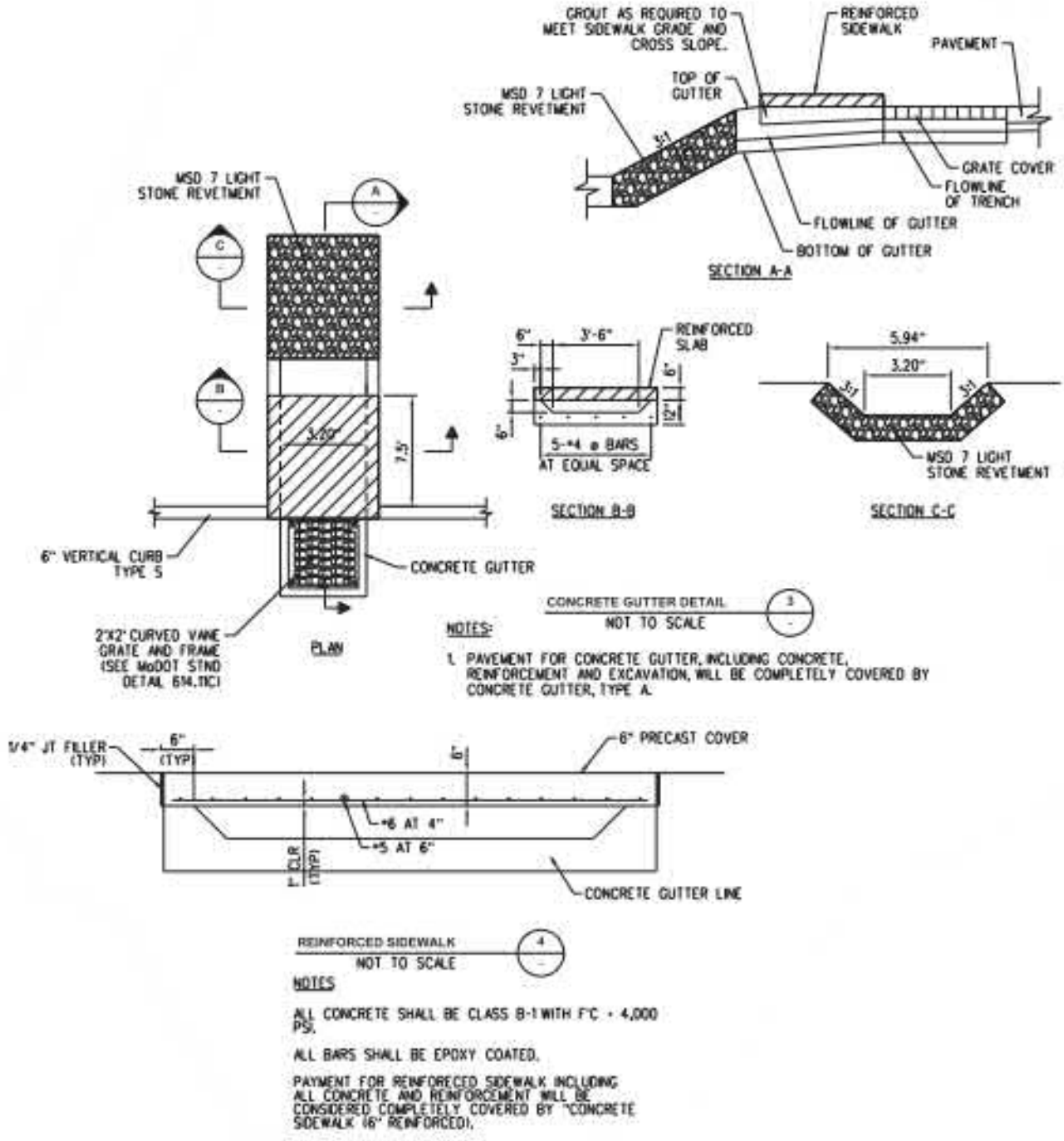


SECTION C–C
SPILLWAY

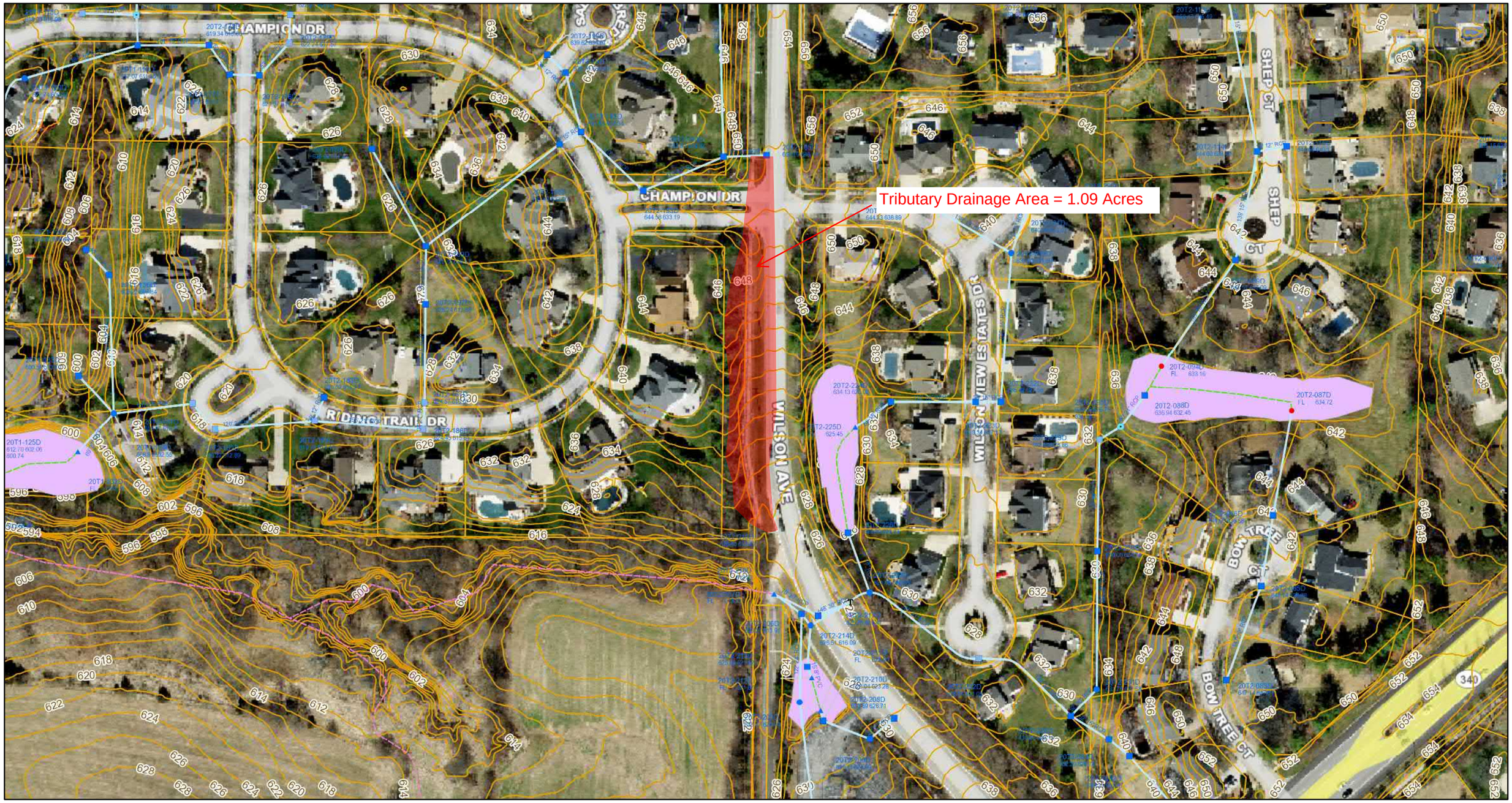
NOTE:

1. UNLESS OTHERWISE NOTED, CONCRETE SHALL BE CLASS "B" PER SECTION 725.

Scupper Detail from Pfizer Office/Laboratory Project



Scupper Detail from Schoettler Road Bridge Project



December 23, 2020

Wilson Avenue Sidewalk Gap - Drainage Area Map

1:1,999

0 0.025 0.05 0.1 mi

0 0.0375 0.075 0.15 km

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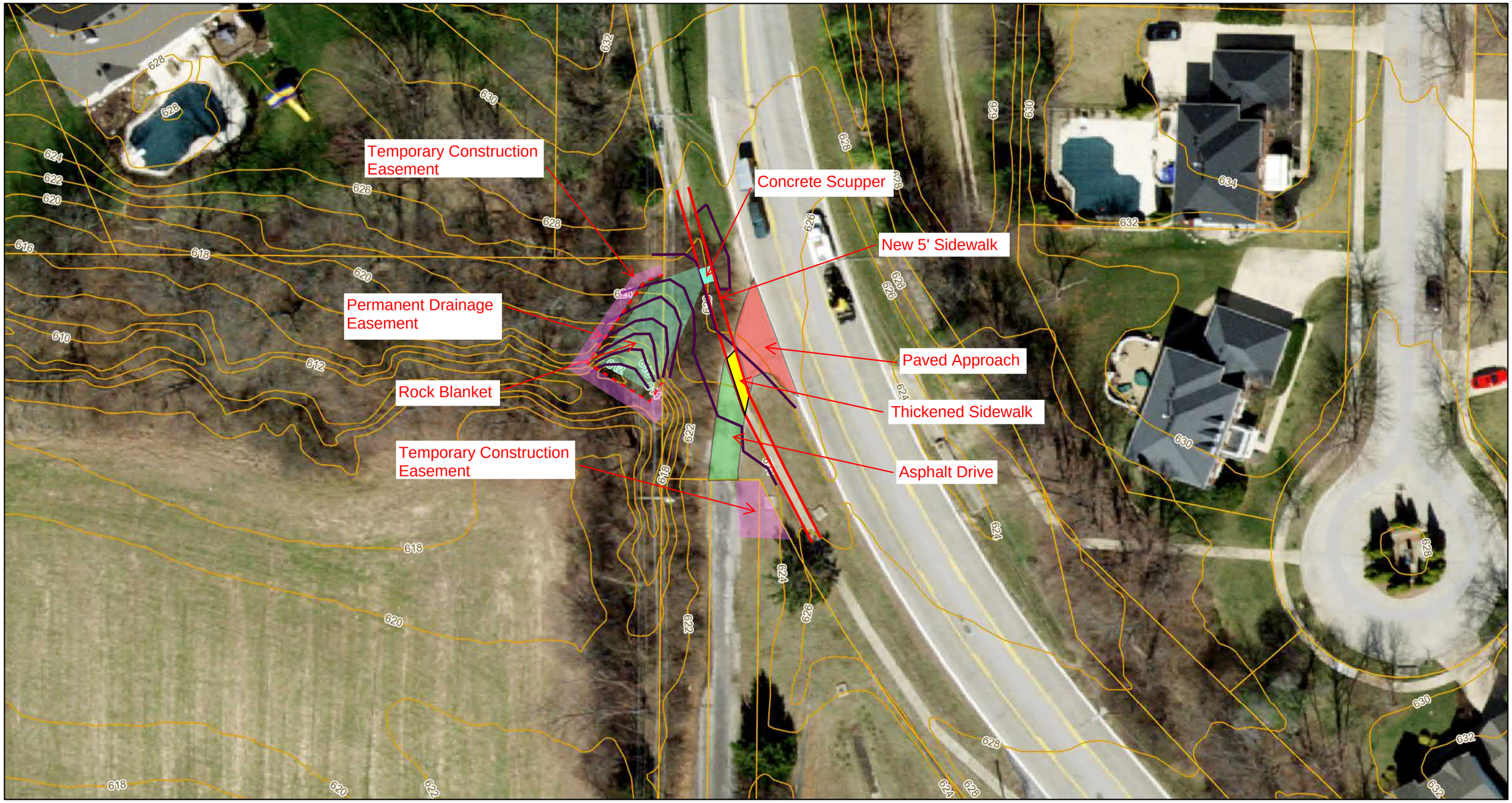
- Stormwater Network Junction

Stormwater Inlet

- Double
- Multiple
- Single

Stormwater Cleanout

- Cleanout
- Stormwater Potential Sinkhole



December 22, 2020

- City 2ft, Valley 1ft
- Parcels
- Preliminary Parcels

Wilson Avenue Sidewalk Gap - Scupper, Option 1

1:600

0 0.0075 0.015 0.03 mi

0 0.01 0.02 0.04 km

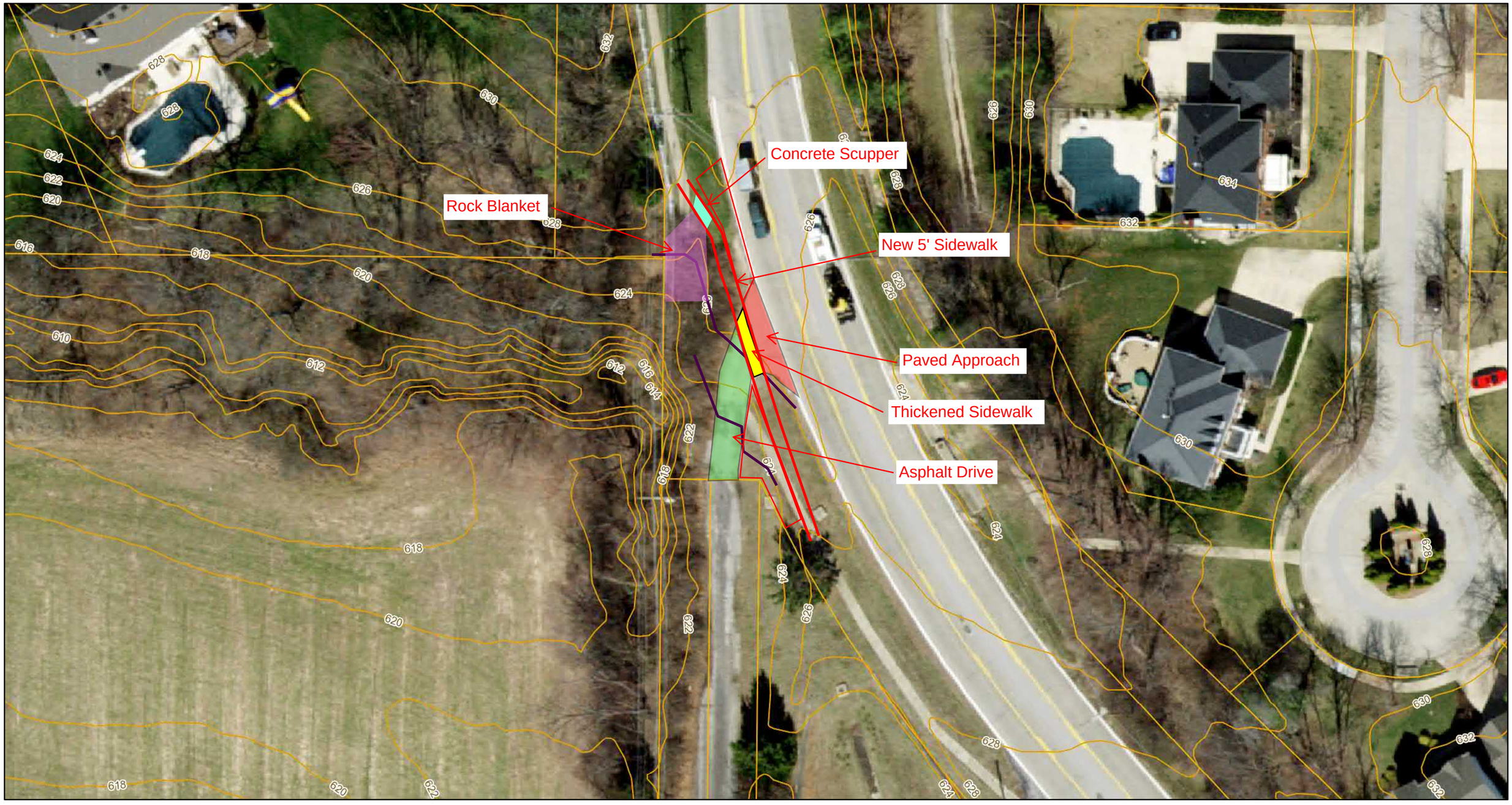
Esri., Inc., City of Chesterfield, Missouri

Wilson Avenue Sidewalk Gap (Sea Beauty/Buckholtz Mortuary)
Option 1 - Scupper Cost Estimate

Line Item	Quantity		Unit Price		Unit Totals
Earthwork	360	CY	$ 25.00	CY	$ 9,000.00
Concrete Scupper	1	EA	$ 3,000.00	EA	$ 3,000.00
Concrete Sidewalk (4" thick)	95	SY	$ 45.00	SY	$ 4,275.00
Concrete Sidewalk (6" thick)	17	SY	$ 55.00	SY	$ 935.00
4" Aggregrate Base	221	SY	$ 7.00	SY	$ 1,547.00
8" Paved Concrete Approach	109	SY	$ 70.00	SY	$ 7,630.00
Asphalt Drive (6" Agg Base, 3" Type C)	92	SY	$ 35.00	SY	$ 3,220.00
Rock Blanket (6-8" Gabion Stone)	250	SY	$ 55.00	SY	$ 13,750.00
Geo-Grid for Rock Blanket	250	SY	$ 5.00	SY	$ 1,250.00
Clearing	1	LS	$ 900.00	LS	$ 900.00
Removals	1	LS	$ 1,500.00	LS	$ 1,500.00
Sodding	330	SY	$ 7.00	SY	$ 2,310.00
Seed and Straw	200	SY	$ 5.00	SY	$ 1,000.00

Construction =	$	50,317.00
Engineering Consultant =	$	23,000.00
Easement Acquisition =	$	3,616.80
Subtotal =	$	76,933.80
15% Contingency =	$	11,540.07

TOTAL =	$88,473.87



December 22, 2020

- City 2ft, Valley 1ft
- Parcels
- Preliminary Parcels

Wilson Avenue Sidewalk Gap - Scupper, Option 2

1:600

0 0.0075 0.015 0.03 mi

0 0.01 0.02 0.04 km

Esri., Inc., City of Chesterfield, Missouri

Wilson Avenue Sidewalk Gap (Sea Beauty/Buckholtz Mortuary)
Option 2 - Scupper Cost Estimate

Line Item	Quantity		Unit Price		Unit Totals
Earthwork	100	CY	$ 25.00	CY	$ 2,500.00
Concrete Scupper	1	EA	$ 4,500.00	EA	$ 4,500.00
Concrete Sidewalk (4" thick)	95	SY	$ 45.00	SY	$ 4,275.00
Concrete Sidewalk (6" thick)	17	SY	$ 55.00	SY	$ 935.00
4" Aggregrate Base	221	SY	$ 7.00	SY	$ 1,547.00
8" Paved Concrete Approach	109	SY	$ 70.00	SY	$ 7,630.00
Asphalt Drive (6" Agg Base, 3" Type C)	92	SY	$ 35.00	SY	$ 3,220.00
Rock Blanket (6-8" Gabion Stone)	105	SY	$ 50.00	SY	$ 5,250.00
Geo-Grid for Rock Blanket	105	SY	$ 5.00	SY	$ 525.00
Clearing	1	LS	$ 900.00	LS	$ 900.00
Removals	1	LS	$ 1,500.00	LS	$ 1,500.00
Sodding	424	SY	$ 7.00	SY	$ 2,968.00
Seed and Straw	75	SY	$ 5.00	SY	$ 375.00

Construction =	$	36,125.00
Land Surveyor =	$	5,000.00
Easement Acquisition =	$	-
Subtotal =	$	41,125.00
15% Contingency =	$	6,168.75

TOTAL =	$47,293.75