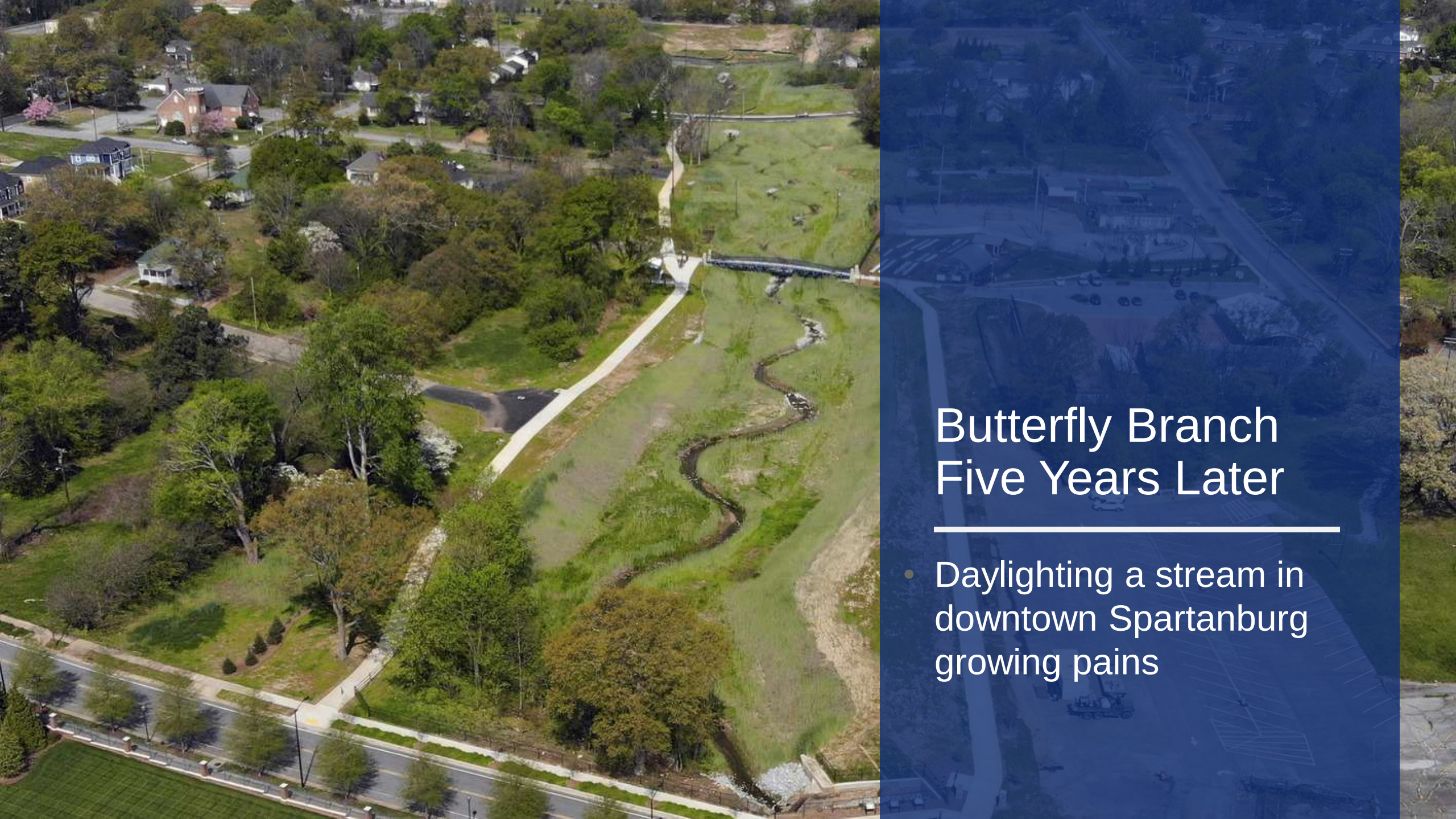


Butterfly Branch Five Years Later

- Daylighting a stream in downtown Spartanburg growing pains

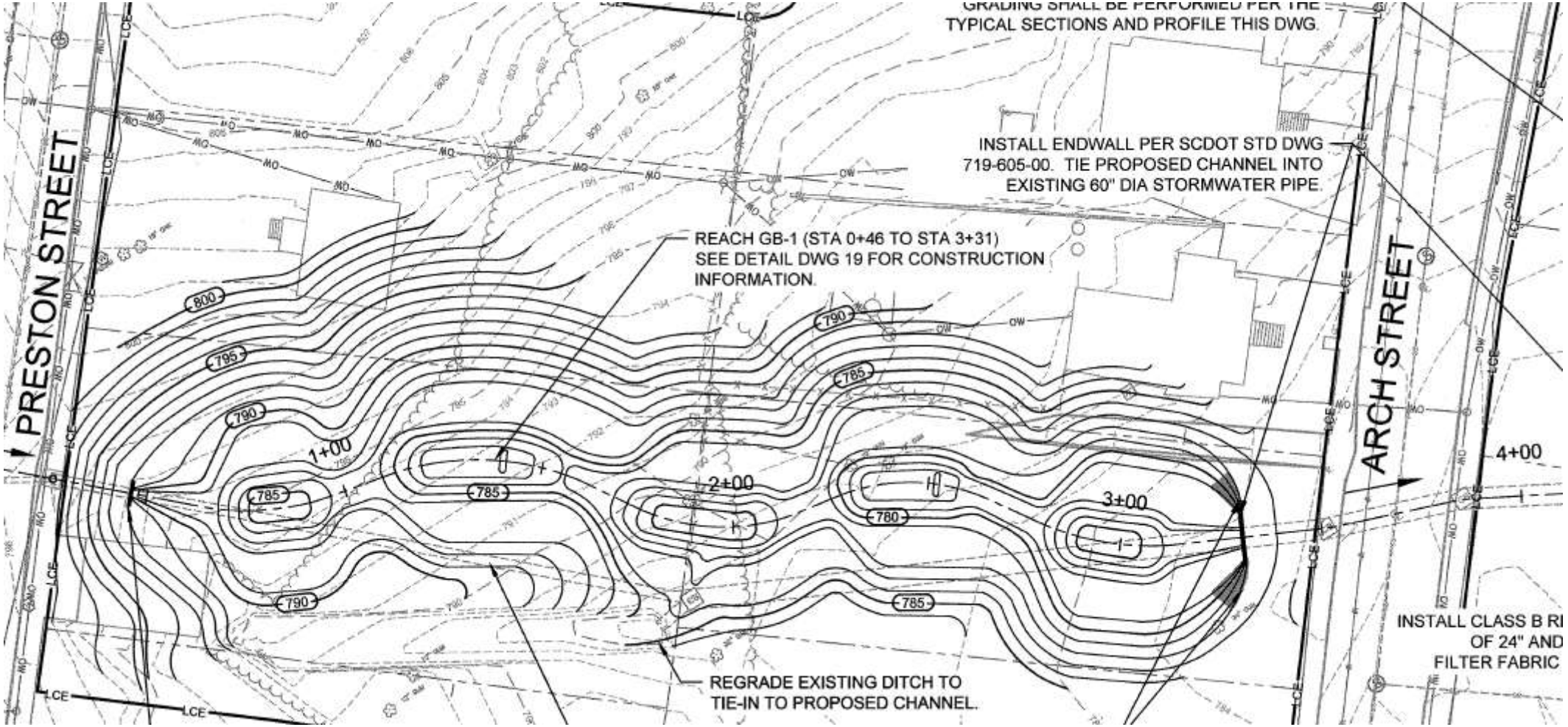
Project purpose:

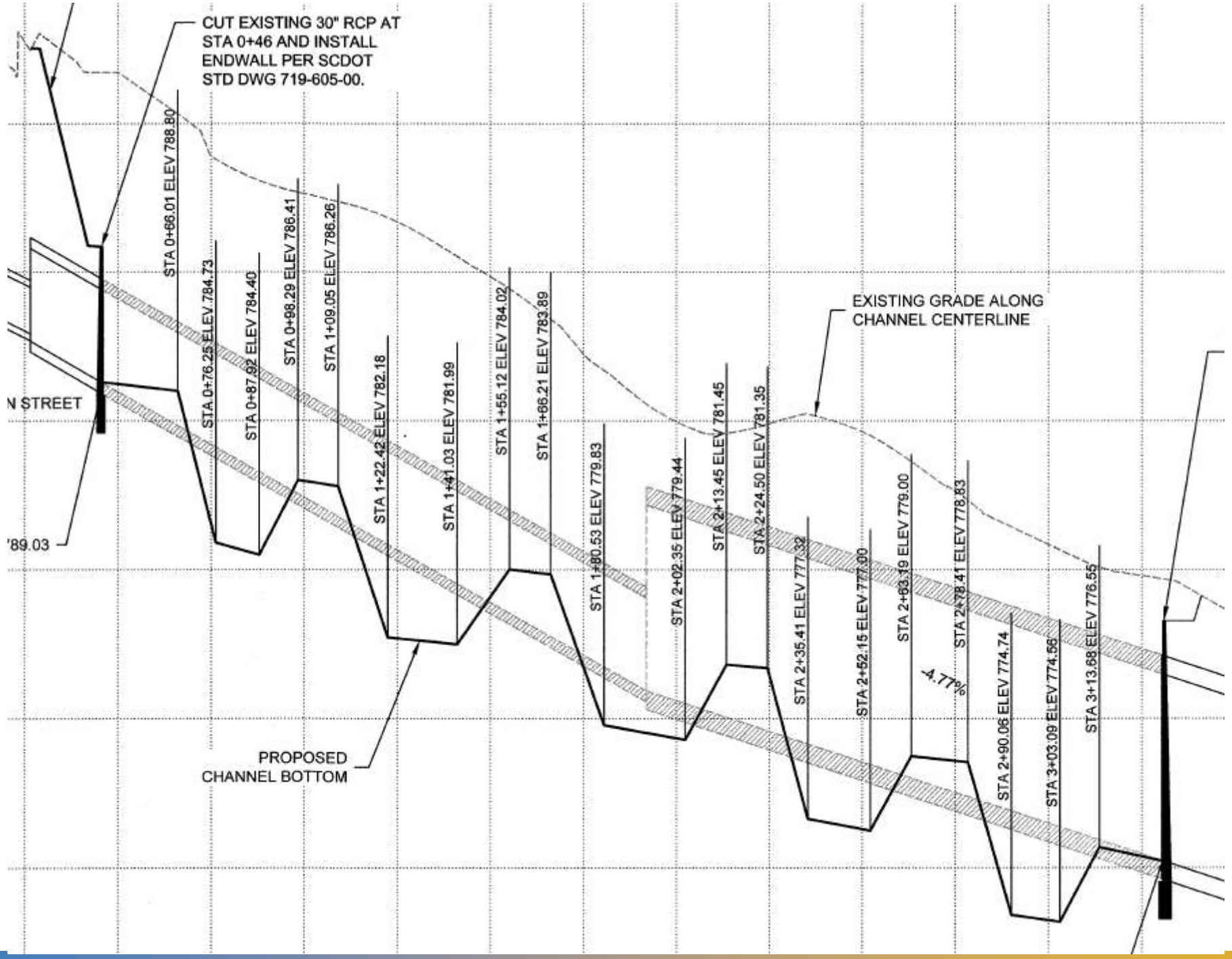
Airport expansion

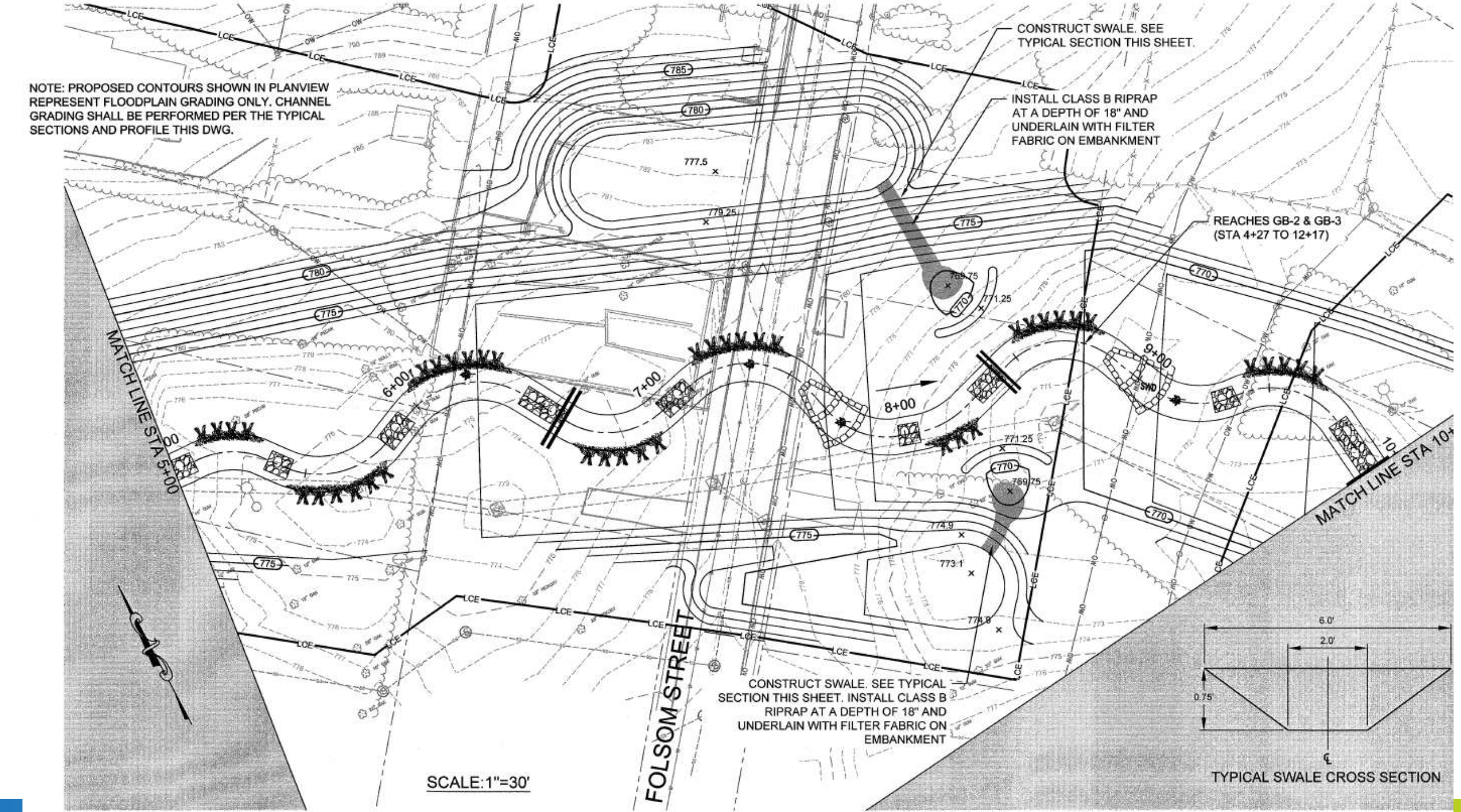
Adding green space

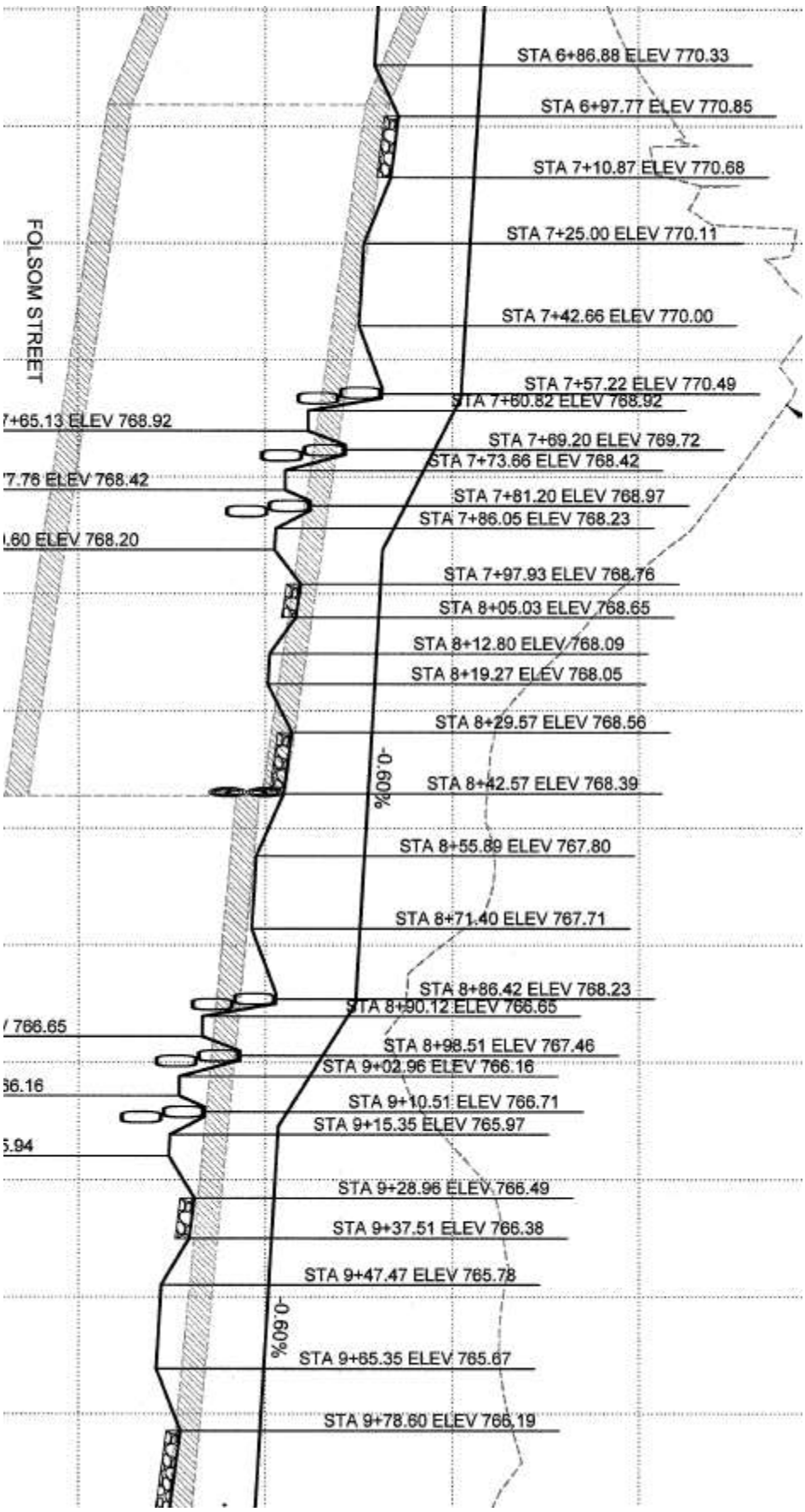
Urban revitalization

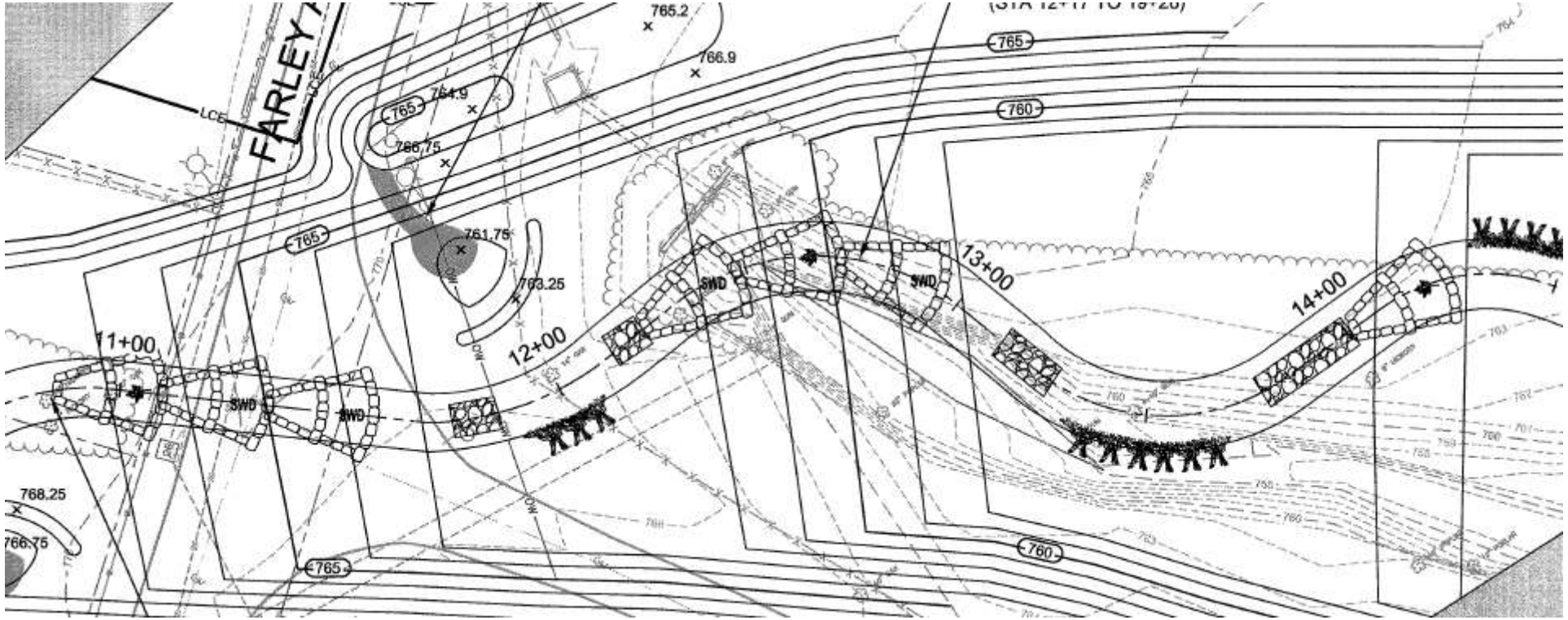
Stream Characteristics


GRADING SHALL BE PERFORMED PER THE TYPICAL SECTIONS AND PROFILE THIS DWG.
INSTALL ENDWALL PER SCDOT STD DWG 719-605-00. TIE PROPOSED CHANNEL INTO EXISTING 60" DIA STORMWATER PIPE.
REACH GB-1 (STA 0+46 TO STA 3+31) SEE DETAIL DWG 19 FOR CONSTRUCTION INFORMATION.
PRESTON STREET
ARCH STREET
1+00
2+00
3+00
4+00
REGRADE EXISTING DITCH TO TIE-IN TO PROPOSED CHANNEL.
INSTALL CLASS B RI
OF 24" AND
FILTER FABRIC


CUT EXISTING 30" RCP AT STA 0+46 AND INSTALL ENDWALL PER SCDOT STD DWG 719-605-00.
EXISTING GRADE ALONG CHANNEL CENTERLINE
PROPOSED CHANNEL BOTTOM
N STREET
'89.03
STA 0+66.01 ELEV 788.80
STA 0+76.25 ELEV 784.73
STA 0+87.92 ELEV 784.40
STA 0+98.29 ELEV 786.41
STA 1+09.05 ELEV 786.26
STA 1+22.42 ELEV 782.18
STA 1+41.03 ELEV 781.99
STA 1+55.12 ELEV 784.02
STA 1+66.21 ELEV 783.89
STA 1+80.53 ELEV 779.83
STA 2+02.35 ELEV 779.44
STA 2+13.45 ELEV 781.45
STA 2+24.50 ELEV 781.35
STA 2+35.41 ELEV 777.32
STA 2+52.15 ELEV 777.00
STA 2+63.19 ELEV 779.00
4.77%
STA 2+78.41 ELEV 778.83
STA 2+90.06 ELEV 774.74
STA 3+03.09 ELEV 774.56
STA 3+13.68 ELEV 776.55


NOTE: PROPOSED CONTOURS SHOWN IN PLANVIEW REPRESENT FLOODPLAIN GRADING ONLY. CHANNEL GRADING SHALL BE PERFORMED PER THE TYPICAL SECTIONS AND PROFILE THIS DWG.
CONSTRUCT SWALE. SEE TYPICAL SECTION THIS SHEET.
INSTALL CLASS B RIPRAP AT A DEPTH OF 18" AND UNDERLAIN WITH FILTER FABRIC ON EMBANKMENT
REACHES GB-2 & GB-3 (STA 4+27 TO 12+17)
MATCH LINE STA 5+00
MATCH LINE STA 10+
FOLSOM STREET
6+00
7+00
8+00
9+00
SWD
LCE
OW
MO
777.5
779.25
769.75
771.25
774.9
773.1
CONSTRUCT SWALE. SEE TYPICAL SECTION THIS SHEET. INSTALL CLASS B RIPRAP AT A DEPTH OF 18" AND UNDERLAIN WITH FILTER FABRIC ON EMBANKMENT
SCALE:1"=30'
6.0'
2.0'
0.75'
TYPICAL SWALE CROSS SECTION


FOLSOM STREET
STA 6+86.88 ELEV 770.33
STA 6+97.77 ELEV 770.85
STA 7+10.87 ELEV 770.68
STA 7+25.00 ELEV 770.11
STA 7+42.66 ELEV 770.00
STA 7+57.22 ELEV 770.49
STA 7+60.82 ELEV 768.92
+65.13 ELEV 768.92
STA 7+69.20 ELEV 769.72
STA 7+73.66 ELEV 768.42
7.76 ELEV 768.42
STA 7+81.20 ELEV 768.97
STA 7+86.05 ELEV 768.23
.60 ELEV 768.20
STA 7+97.93 ELEV 768.76
STA 8+05.03 ELEV 768.65
STA 8+12.80 ELEV 768.09
STA 8+19.27 ELEV 768.05
STA 8+29.57 ELEV 768.56
-0.60%
STA 8+42.57 ELEV 768.39
STA 8+55.89 ELEV 767.80
STA 8+71.40 ELEV 767.71
STA 8+86.42 ELEV 768.23
STA 8+90.12 ELEV 766.65
/ 766.65
STA 8+98.51 ELEV 767.46
STA 9+02.96 ELEV 766.16
66.16
STA 9+10.51 ELEV 766.71
STA 9+15.35 ELEV 765.97
5.94
STA 9+28.96 ELEV 766.49
STA 9+37.51 ELEV 766.38
STA 9+47.47 ELEV 765.78
-0.60%
STA 9+65.35 ELEV 765.67
STA 9+78.60 ELEV 766.19


765.2
766.9
764.9
765
766.75
761.75
763.25
765
760
11+00
12+00
13+00
14+00
SWD
SWD
SWD
768.25
766.75
765
760

Nearly constant construction oversight.

Communication between contractor to engineer to city was fantastic.

One year later…

Approximately 1 Liz in height.

Five years later…

Challenges

- Water is piping under the double cross vane
- Vegetation plots are struggling without invasive maintenance
- Willows are catching sediment, reshaping the stream

- Boulder Step Pools were successful and are stable.
- Natural channel stream is stable and resilient.
- Community is enriched

- System is supply limited, did that affect cross vane effectiveness?
- Should riverbanks be managed to avoid overcrowding or not use willows?
- Include invasive species removal as part of maintenance

Questions?