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DATE: October 17, 2014

TO: Wayne Wilson (DDOT)

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PROJECT: Reconstruction of Oregon Avenue, N.W., District of Columbia
Project No. STP – 4174 (001)

SUBJECT: Pinehurst Branch Crossing Options

The proposed roadway reconstruction project is located along Oregon Avenue between Military Road NW to Western Avenue. The project includes the replacement of a structurally and hydraulically deficient culvert at the Pinehurst Branch crossing. The 10-year flood overtops the existing culvert and the streambed shows signs of severe scour.

The existing conditions have been modeled in HEC-RAS and the water surface elevations at the upstream face of the bridge are shown in Table 1. The Environmental Assessment document (2012) recommends replacing the existing structure with another structure that is sufficient to accommodate stormwater up to a 50-year flood event.

Table 1: Bridge Option Design Parameters

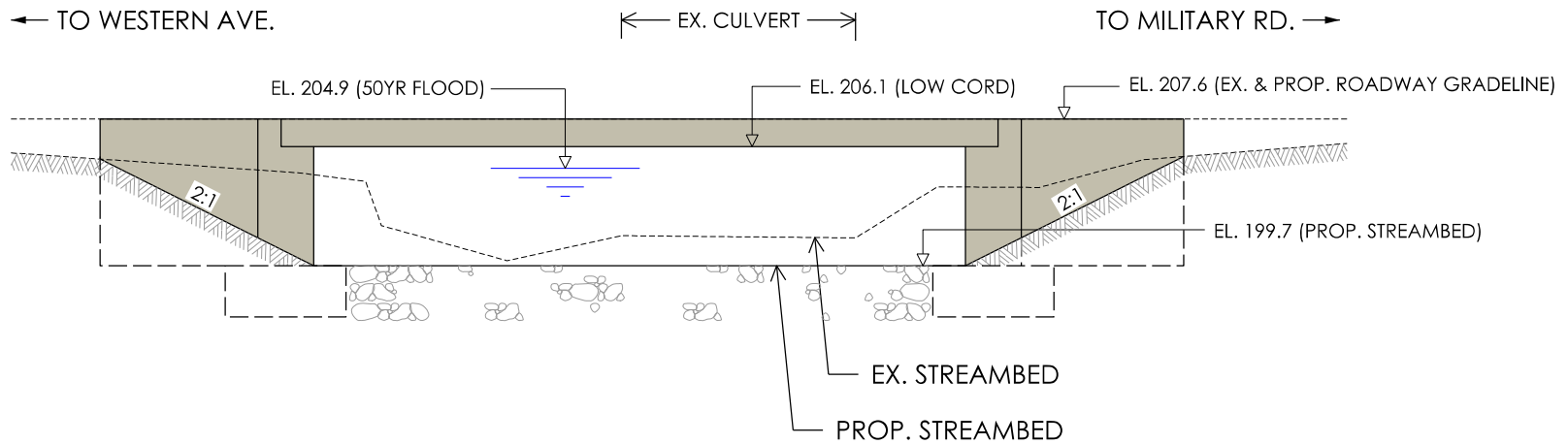
| Design Parameters | Existing | Proposed Options | | |
|---------------------------|----------|-------------------|----------|-----------------|
| | | 1 - Straight Span | 2 - Arch | 3 - Curved Span |
| 10-Year Flood WSE | 209.3 | 204.0 | 203.0 | 203.3 |
| 25-Year Flood WSE | 210.0 | 204.5 | 203.5 | 203.8 |
| 50-Year Flood WSE | 210.6 | 204.9 | 204.1 | 204.2 |
| 100-Year Flood WSE | 210.8 | 205.4 | 206.9 | 204.7 |
| Roadway Profile Elevation | 207.6 | 207.6 | 208.9 | 211.2 |

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The proposed crossing options include a straight span, an arch, or a curved span bridge. Exhibit 1 shows a 35' span by 6.4' rise precast rectangular bridge. The advantage of this option is that it will maintain the existing roadway profile elevation. Exhibit 2 shows a 40' span by 5'-8 1/4" rise precast bottomless arch, which will require the roadway profile to be raised 1.3'. Exhibit 3 shows a 32' span by 7' rise precast bottomless curved span, which is the shortest span but requires the roadway profile to be raised 3.6'. The options were designed to pass the 50-year flow with 1-foot of freeboard. All proposed crossing options decrease the 100-year flood elevation and the 100-year flood will not overtop any of the options. See attached exhibits for the bridge options.

OREGON AVENUE OVER PINEHURST BRANCH 50-YEAR FLOOD



35' SPAN x 6.4' RISE
BRIDGE

LOOKING DOWNSTREAM

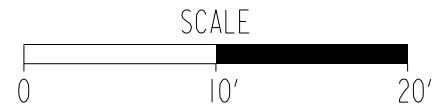
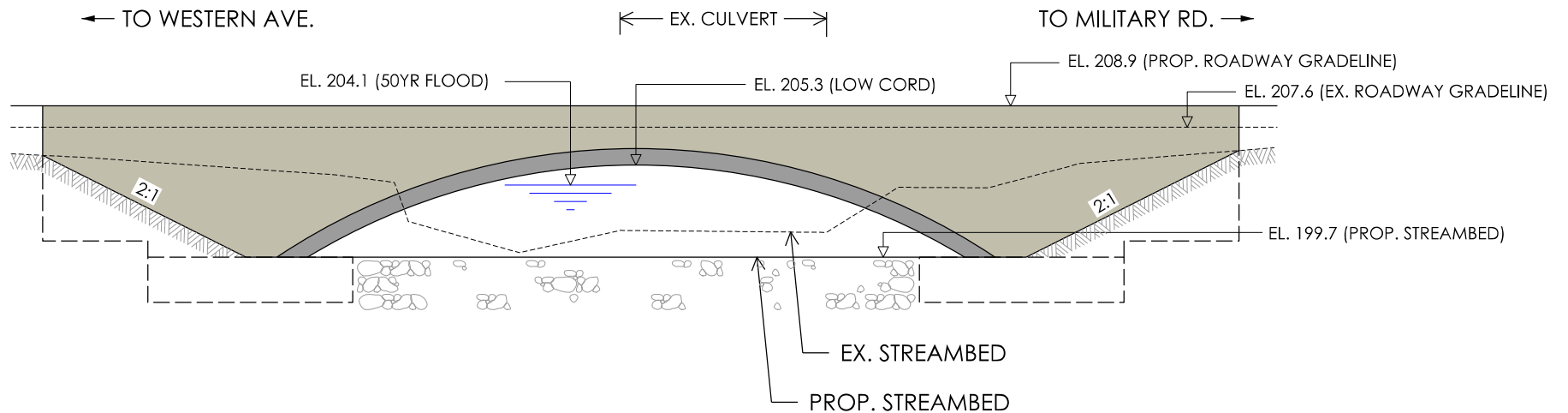


EXHIBIT 1

OREGON AVENUE OVER PINEHURST BRANCH 50-YEAR FLOOD



40' SPAN x 5'-8 $\frac{1}{4}$ " RISE
BOTTOMLESS ARCH

LOOKING DOWNSTREAM

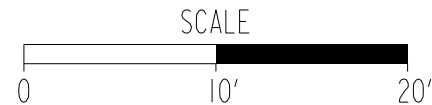
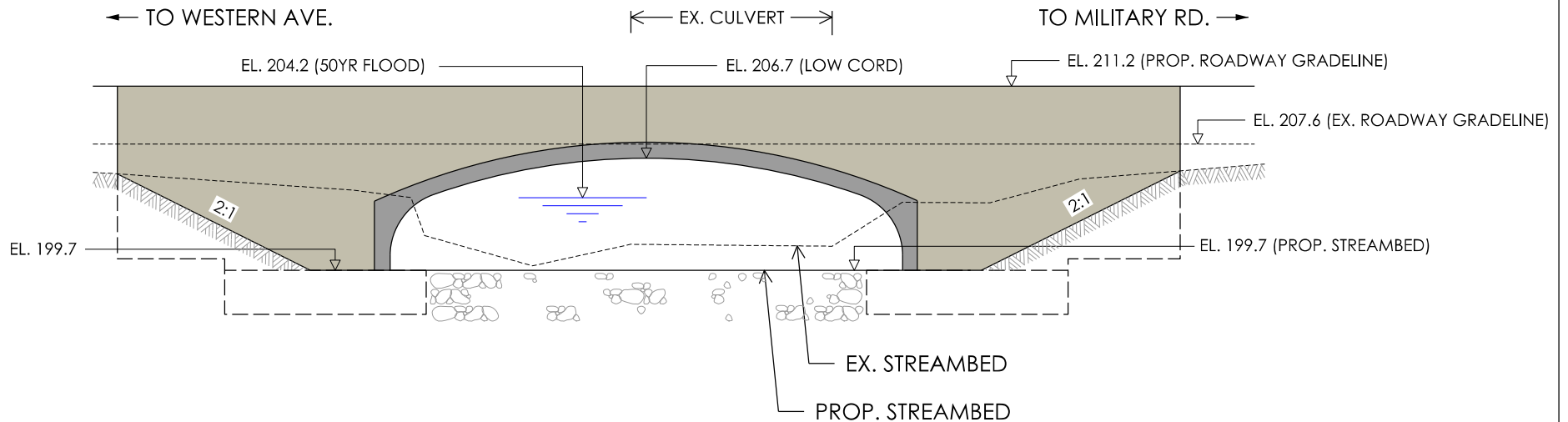


EXHIBIT 2

OREGON AVENUE OVER PINEHURST BRANCH 50-YEAR FLOOD



32' SPAN x 7' RISE
BOTTOMLESS CURVED SPAN

LOOKING DOWNSTREAM

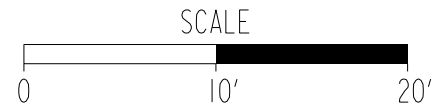


EXHIBIT 3