**IOWA DEPARTMENT OF TRANSPORTATION**

| | | | |
|---|---|---|---|
| **TO OFFICE:** | District 5 | **DATE:** | December 18th, 2018 |
| **ATTENTION:** | James V. Armstrong | **PROJECT:** | Henry County<br>NHSN-218-2(151)--2R-44 |
| **FROM:** | Anthony J. Klein | | PIN: 19-44-218-010 |
| **OFFICE:** | District 5 Design | | |
| **SUBJECT:** | FY 2021 – Slide Repair Project Concept | | |

**PROJECT LOCATION MAP**: Page 3 or Click Here

**Henry County, US 218 NB, MM 34.7 - Sta. 167+00**

Observations/Notes:

The overall area of the backslope instability has a combined longitudinal length of about 340 feet, starting near Station 164+55 and extending to about Station 167+95. It appears that the backslope has a maximum height of about 25 feet and a 3:1 slope. It also appears that there are two (2) major slides located along the backslope within these limits. The actual limits of the instability were difficult to determine due to the amount of vegetation present and the apparent time laps since instability movement. It is understood that this backslope has been in this current condition for several years. Slough material has moved downslope and partially fills the ditch at the toe of slope. Standing water was observed in the roadside ditch. Based on the 2002 as-built roadway plans, it appears that the Right of Way (ROW) limits are located 200 feet from roadway centerline. Except for near the southern limits of instability, the top of backslope is generally located near the apparent ROW limits. The scarp of the southernmost slide is located near the ROW limits at its highest point. Land use beyond the ROW limits at the top of slope is agricultural row crop. This field generally slopes downward to the south parallel to the backslope.

Link to pictures: DSCN2084.JPG

Link to relevant as-built 1962 roadway plan sheets: US 218, roadway 1962 as-builts, Station 167+00.pdf

Link to relevant as-built 2002 roadway plan sheets: US 218, roadway 2002 as-builts, Station 167+00.pdf

Recommendations:

Bench and rebuild the backslope to pre-existing conditions starting near Station 164+35 and then extending north to about Station 168+15. It is recommended that the backfill fill material consist of suitable embankment and that a subdrain system be installed to more efficiently move water away from the rebuilt backslope. The repair shall start at the toe of the existing backslope and then extend up to the top of slope. Investigate and repair, if necessary, the plastic ditch letdown, as shown on the 2002 as-built plans, located to the north of the backslope instability. This letdown structure was not observed at the time of our field visit.

Additional ROW will not be needed to complete this repair. However, a temporary easement will be necessary due to the proximity of the instability to the ROW limits.

Recommend obtaining field survey for the preparation of plans.

The following quantities and associated costs are estimated for the backslope repair. This estimate does not include any costs associated with obtaining a temporary easement.

Estimated Quantities and Costs:

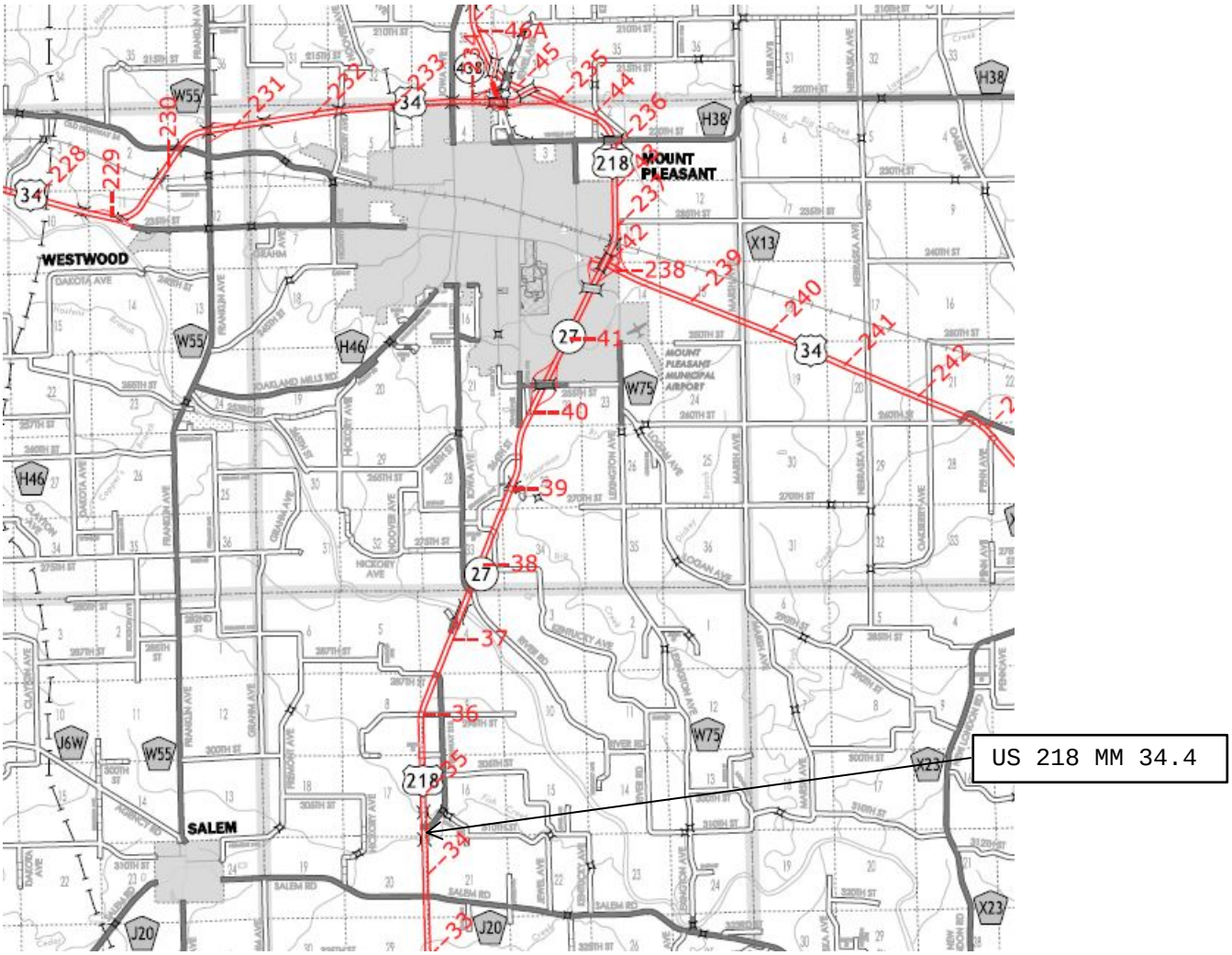
**US 218 - MM 34.7**

| Item | Quantities | Cost |
|---|---|---|
| Excavation, Class 10, Waste | 2,644 CY | $ 20,000.00 |
| Embankment-in-Place, Contractor Furnished | 1,949 CY | $ 97,000.00 |
| Topsoil, Furnish and Spread | 695 CY | $ 21,000.00 |
| Granular Material for Blanket and Subdrain | 265 CY | $ 6,500.00 |
| Subdrain, Standard, Perforated, 4 inch | 720 LF | $ 7,000.00 |
| Subdrain Outlet (DR-303) | 4 UNITS | $ 2,000.00 |
| Contingency, Mobilization & Traffic Control (40%) | | $ 61,400.00 |
| | | |
| Total Cost | | $ 214,900.00 |

**FUNDS PROGRAMMED**:

It has been identified by the District 5 office for construction in FY 2021. A schedule of events for plan development will be determined following approval of the Project Concept.

**LOCATION MAP**:




cc:

| | | |
|---|---|---|
| C. Purcell | M. J. Kennerly | K. D. Nicholson |
| D. L. Maifield | C. B. Brakke | S. J. Megivern |
| F. W. Todey | A. A. Welch | N. M. Miller |
| C. C. Poole | S. Anderson | G. A. Novey |
| M. A. Swenson | M. J. Sankey | R. A. Younie |
| D. R. Tebben | B. D. Hofer | K. Brink |
| D. L. Newell | B. E. Azeltine | D.R. Claman |
| T. D. Hanson | S. J. Gent | W.A. Sorenson |
| T. D. Crouch | J.W. Laaser-Webb | M. Van Dyke |
| D. E. Sprengeler | E. C. Wright | H. Torres-Cacho |
| J. R. Webb | A.J. Klein | J. R. Phillips |
| B. M. Clancy | T. Quam | FHWA |
| M. E. Ross | J. Selmer | P.C. Keen |
| J. Garton | J. Woodcock | B. Walls |