

SURVEY REQUEST

EXHIBIT
A 1/12



| | | | |
|---|--|------------------------|-----------------------------------|
| Project name: | Sterling Hwy MP 57 Erosion Protection | | |
| From: (Section, Design Group) | Highway Design | Date Submitted: | Feb 2014 |
| Request initiated by: | Ricardo Policicchio | Phone: | 269-0651 |
| State/Federal/AIP Project #: | 57729 | | |
| Desired Completion Date: | April 2014 | Collo Code: | 24417531 |
| Ledger Code: | 30517421 | | |
| Project Scope & Survey Limits: (include exhibits as attachments) | Program Code: | 57202 | Account Code: 73652 |

(Please contact Right of Way Engineering prior to filling this out, as their requirements may directly affect the survey effort required. Include their response)

For each area the following information is needed: Alignment data or physical location of line (exist CL, top bluff, etc.); Desired contour interval; Distance or physical limits left and/or right from line desired. Please provide an attachment for each alignment.

Scope of overall project:

Install erosion protection and as necessary realign the Sterling Highway near historical milepost (MP) 57 to prevent highway embankment damage due to recent shifting of the Kenai River.

Scope of survey work requested:

Design-level topo survey of attached area, to include hydrographic survey of sections of the Kenai River.

Locate: (Fill empty slots if desired & Check all that apply)

| Improvements | | Drainage | | Utilities | | Right of way/Monuments | | Other | |
|--------------------------|---|-------------|---|---------------|---|------------------------|--|---------------------------------------|---|
| Edge Pvmnt., Curbs, etc. | X | Culverts | X | Above Ground | X | Front Corners Only | | Driveway & Approach Inx. With Highway | X |
| Structures | | Ditches | X | O'head X-ings | | Front & Back Corners | | Signs | X |
| Sewer/Septic System | | Storm Drain | | Inverts | X | Monuments in Roadway | | Ord High Water | X |
| Bridge Site Survey | | | | | | Encroachments | | | |
| | | | | | | | | | |

Construction Schedule

When is construction anticipated to occur?

Phased – Starting
Summer 2014

(This section for Survey Section use)

Survey Assigned to: Mullikin Surveys

Estimated Completion Date: April 2014

Completed by _____ Date Completed _____

Notes: _____

Project History:

The Kenai River has been eroding closer and closer to the Sterling Highway at MP57 over the years, but it has greatly accelerated over the last year. As of March 2014 there is only 18 feet between the river bank and the highway slope. More than 11 feet has eroded away over the winter of this year, due to the unseasonably warm weather.

There is a need for expedited survey delivery for the hydrographic portion, as well as the uplands portion immediately surrounding the erosion area in order to perform the necessary hydraulic calculations to design stabilization features. The remainder of the survey data can follow soon after, to include the area necessary for highway realignment plans.

H_z/Vert Control:

Control was set throughout this area for the Sterling Hwy 45-60 Paving project in 2010. Much of this control should still exist, and shall be used for this project. The main control consists of a single point set near the intersection of Skilak Lake Road, and a pair of points set at the Quartz Creek Airport. A typical DOT control network of Rbr/PC's exists between those 2 areas, as shown in the attached control exhibits.

H_z Datum: KEN-2

Local to State Plane: +2,296,865.6343 N +1,312,527.4153 E Scale by 0.9998805066 (1/1.0001195077)

V Datum: NGVD29 as determined by levels run through USC&GS BM's. (Spreadsheet attached)

**ROW/Monument Ties:**

Limited ROW ties will be needed, as the highway runs through the Moose Range in this area.

Locate USS 13166 in order to complete mapping for the highway as it runs through the Moose Range.

TIN/Topo:

Follow the attached Survey Request memo from Paul Janke for the area in/around the Kenai River. The directions should be followed specifically, as he needs certain data in order to create his hydraulic flow models. Ordinary high water also needs to be defined along the river banks.

For other areas, a standard +/-50' shot spacing grid should be sufficient to develop a TIN capable of 1' contours. Include all planimetrics within the requested area, along with any drainage features.

Other:

This project is nearly in the "Emergency Survey" category, in that we need completed deliverables ASAP. For this reason, the area immediately surrounding the erosion area should be delivered first, with the remainder of the data to follow.

Completed by _____ Date Completed _____
Notes: _____



Google earth

miles 1
km 1



Location Map
Sterling Highway MP 57 Erosion Protection
In-House Scoping

EXHIBIT
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EXHIBIT
A 4/12

Begin Survey around
Existing 24" Culvert

Survey total length is approximate 1 mile
Survey up to ROW limits. Estimated 150' North and 150' South of Centerline

End survey about 300- 400
feet of tangent after curve

STERLING HWY

MILEPOST 57

survey area

Top and Bottom of
embankment

© 2013 Google

Google earth

Imagery Date: 4/17/2011 60°28'59.06" N 150°04'04.40" W elev 237 ft eye alt 5403 ft

1097 ft

1996

EXHIBIT

A 5/12

Immediate need

Begin Survey around
Existing 24" Culvert

Survey total length is approximate 1 mile
Survey up to ROW limits, Estimated 150' North and 150' South of Centerline

End survey about 300-400
feet of tangent after curve

STERLING HWY

MILEPOST 57

survey area

Secondary

Top and Bottom of
embankment

Secondary

© 2013 Google

Google earth

1996

Imagery Date: 4/17/2011 60°28'59.06" N 150°04'04.40" W elev 237 ft eye alt 5403 ft



EXHIBIT
A 6/12



MEMORANDUM

State of Alaska

Department of Transportation and Public Facilities
Design and Engineering Services – Central Region
Preliminary Design and Environmental

TO: Cindy Ferguson, P.E.
Project Manager
Highway Design

DATE: February 7, 2014

PROJECT NAME: Sterling Highway MP 57 Erosion Protection

PROJECT NO.: Survey Request

FROM: Paul Janke, Ph.D, P.E.
Regional Hydrologist

SUBJECT:

Erosion from the Kenai River is threatening the Sterling Highway near MP 57. This location is near the existing MP 57 marker and about 800' east of the Fuller Creek trailhead. From Google Earth, the latitude and longitude are about N 60° 29' 5.6", W 150° 4' 17.7".

The following survey information is requested to assist the Sterling Highway erosion protection recommendations. Attached is an April 17, 2011 Google Earth image of this location. Arrows in the river indicate the predominant Kenai River water flow direction.

Kenai River cross sections

1. Cross section locations are shown on the attached image.
2. The upstream cross section is about 80' downstream of the mid-channel island shown in the image.
3. The downstream cross section is about 50' upstream of where the river channel widens significantly.
4. Cross sections are roughly perpendicular to the outer river banks.
5. Provide one point on top of the outer bank adjacent the break point.
6. Provide one point about 25' behind the outer bank break point.
7. Point spacing should be about 25' maximum.
8. Provide a point at the lowest streambed elevation at each river cross section.
9. Identify significant break points in the river. This includes locating previously sloughed bank material that is expected to be on the streambed near the steep Kenai River bank.
10. Provide a point at the toe of each outer bank.
11. Provide a point on the water surface at both sides of the river.
12. Provide a point at the lowest streambed elevation between each cross section.

Kenai River bank profile

13. Provide a point on top of the Kenai River bank on the Sterling Highway side of the river from the upstream cross section to the downstream cross section.
14. Point spacing should be about 25' maximum.
15. Identify significant break points.



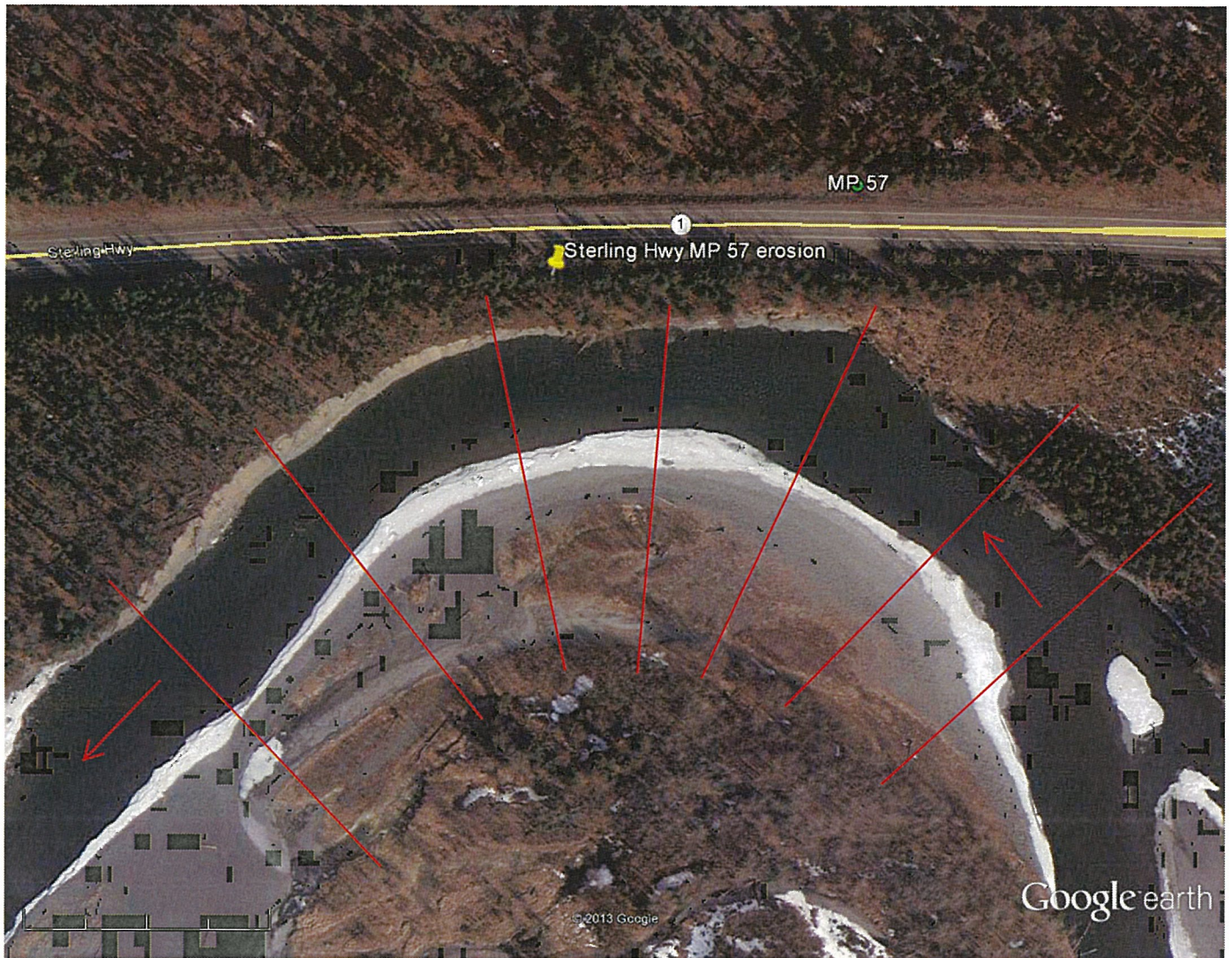
Sterling Highway

- 16. Provide a point on the Sterling Highway edge of pavement and the adjacent toe of fill.
- 17. Point spacing should be about 25' maximum.
- 18. These points should roughly span all the Kenai River points requested above.

Additional information

- 19. Provide the dates the survey data were obtained.

cc: Bob Keiner, Survey Manager, Survey



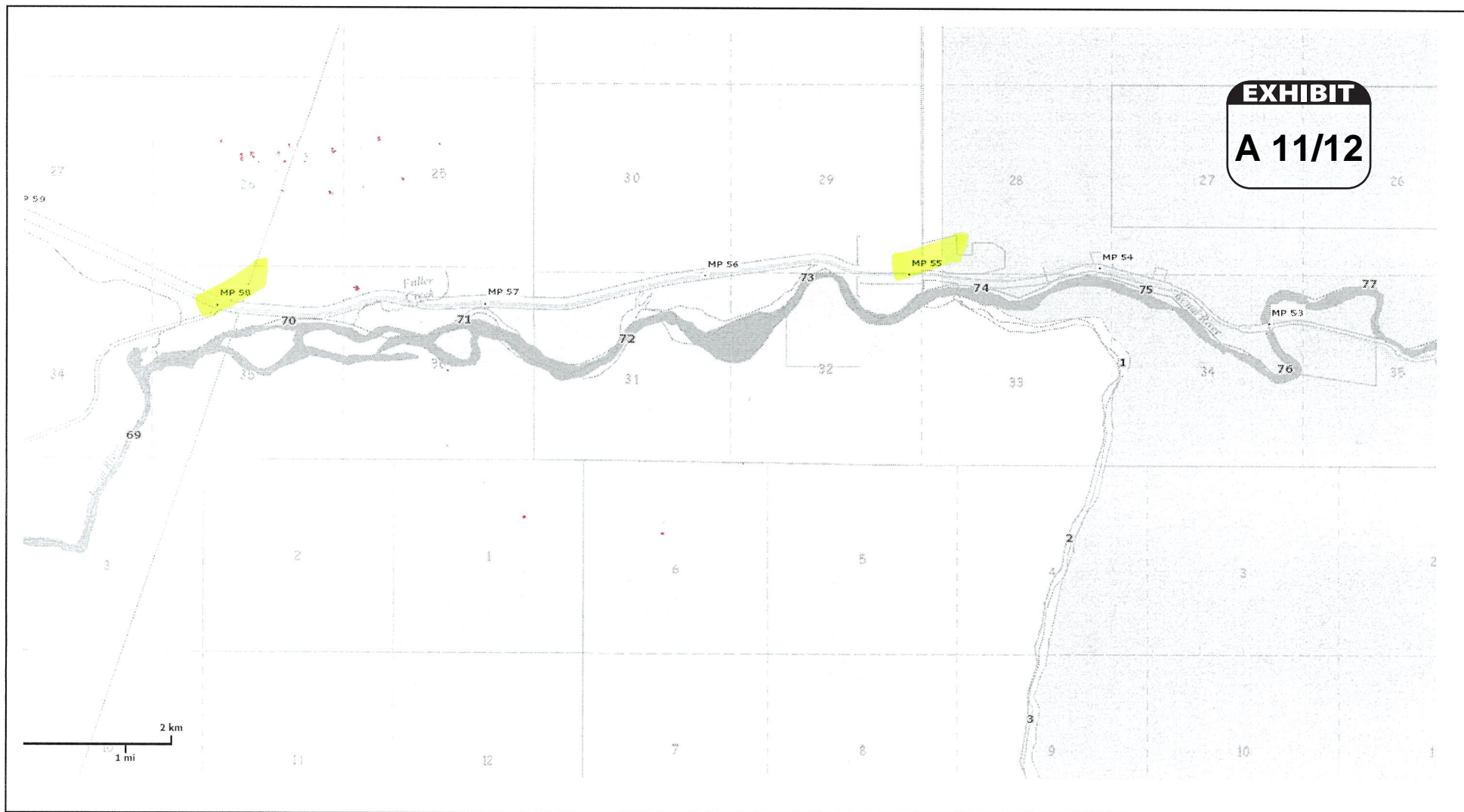
Google earth

feet
meters

100 600



EXHIBIT
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KPB Parcel Viewer

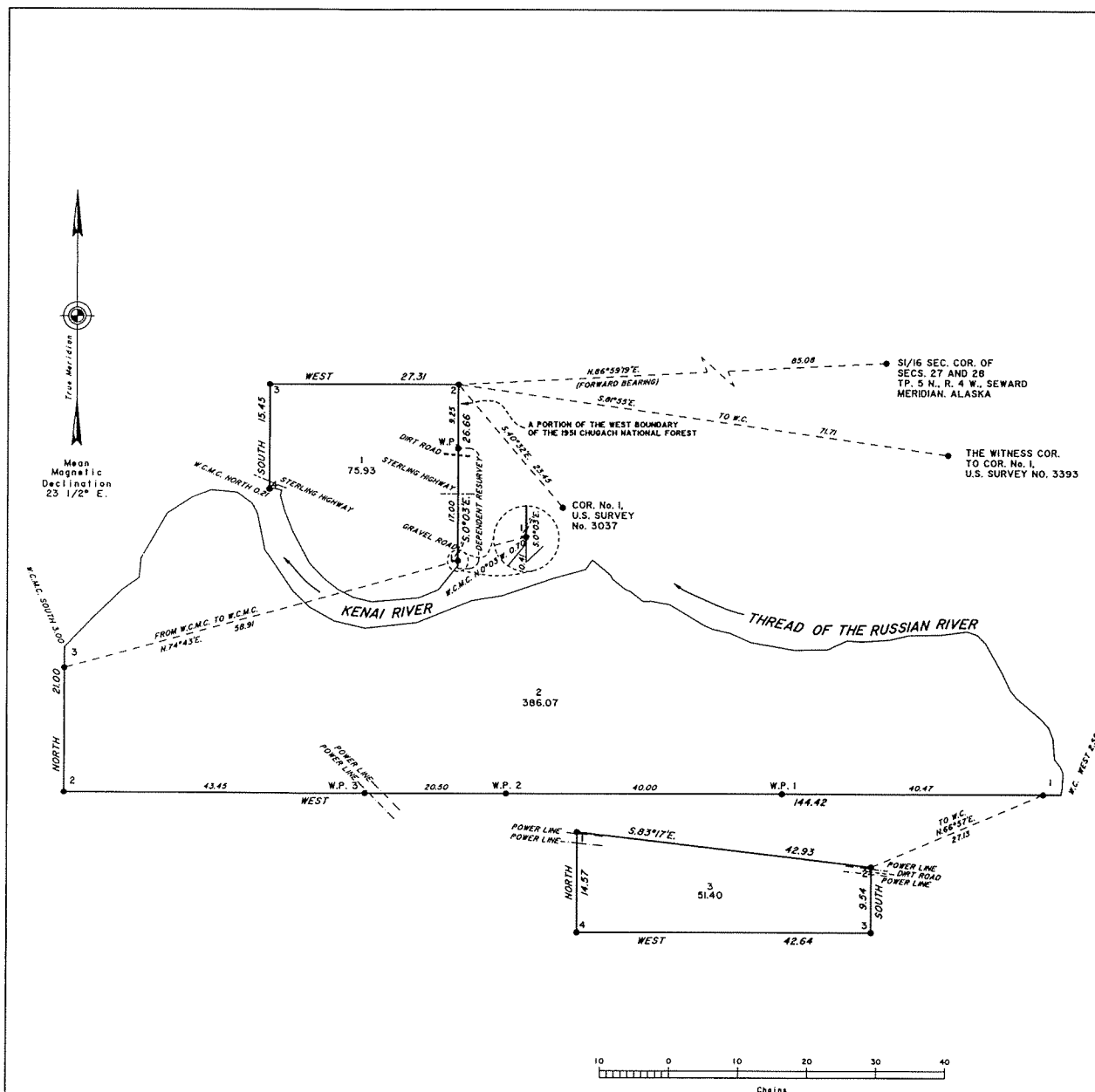


Printed: Mar 05, 2014

ORIGINAL

AREA SURVEYED 513.40 ACRES
SURVEYED BY
KURT D. HUHTA, CADASTRAL SURVEYOR
MAY 17 THROUGH OCTOBER 10, 2002
UNDER SPECIAL INSTRUCTIONS
DATED SEPTEMBER 20, 2001
APPROVED SEPTEMBER 24, 2001

Daniel L. Johnson 4-22-04
ALTMG Date
Deputy State Director for Cadastral Survey, Alaska



KDH