

Example Document

Bridge Attachment Details

USGS STREAMFLOW STATION: COLORADO RIVER AT COLUMBUS, TEXAS
STREAMGAGE INSTALLATION SPECIFICATIONS
LATITUDE: 29° 42' 24.0" LONGITUDE: -96° 32' 14.14"

GAGE SHELTER (STEP-IN TYPE):

- The data collection platform/satellite transmitter will be installed in a 4' X 4' X 60" step-in type shelter near the upstream bridge, upstream, right bank, at least 5 feet from the guardrail / sidewalk.
- Gage shelter will be atop a galvanized angle tubing steel stand, anchored to a 7' x 7' concrete pad to be poured at location.
- LED type informational sign will be attached to west side of gage displaying river stage.
- Satellite antenna, rain gage, and solar panel will be mounted on two 2" pipes attached to the shelter.

RADAR STAGE SENSOR:

- The radar stage sensor is currently mounted in a waterproof mounting enclosure and secured to the outside face of the downstream bridge, upstream guard rail, over the center of the channel. Sensor will be moved to the new upstream bridge and attached to the upstream concrete guardrail using 3/8" X 3 1/2" galvanized steel concrete wedge anchor bolts. Data/power line will be encased in the 3/4" rigid galvanized conduit.

RADAR SENSOR CONDUIT LINE:

- The radar sensor data/power line will be encased in 3/4" rigid galvanized conduit, beginning at the new gage shelter location near the upstream bridge, continuing along outside face of concrete guardrail, terminating at radar sensor over deepest part of river channel. Radar sensor conduit line will be attached using P-clamps, every seven feet with 3/8" X 3 1/2" galvanized concrete wedge anchors.

STAGE SENSOR ORIFICE LINE:

- The stage sensor orifice line will be encased in 1 1/4" rigid aluminum conduit beginning at the new gage shelter, continuing around apron and terminating in 2" galvanized conduit into the river channel. Stage sensor orifice line will be buried once at ground level after leaving bridge apron. A second 1 1/4" rigid aluminum conduit line will run parallel and contain the communication cable for a water temperature sensor, also termination terminating in river channel.

TYPE-A WIRE WEIGHT:

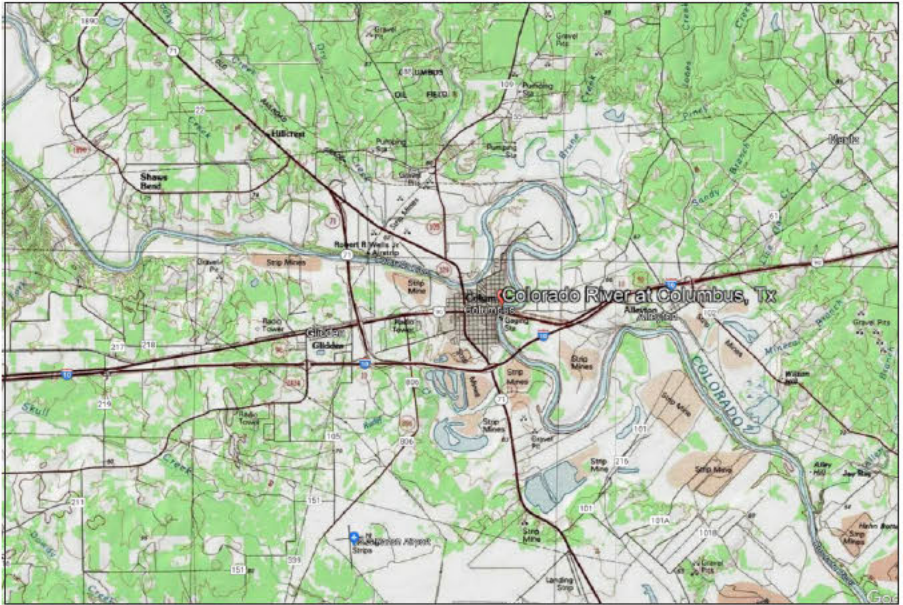
- A USGS Type-A Wire-Weight is currently attached on the downstream bridge, outside face of the upstream guard rail, over the deepest portion of the channel. Wire-Weight will be removed and reinstalled to outside face of concrete guard rail on the upstream bridge, upstream side, using a minimum of two 3/8" X 3 1/2" galvanized concrete wedge anchor bolts.

CREST STAGE GAGE PIPE:

- The crest stage gage (CSG) will be attached to pile bent on the upstream, right bank nearest gage. The crest stage gage will be attached using a minimum of four 3/8" X 3 1/2" galvanized concrete wedge anchor bolts.

GENERAL NOTES:

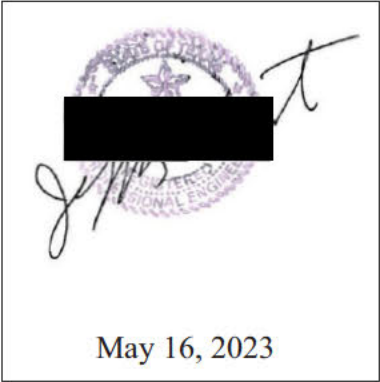
- No attachments to the bridge will extend above the elevation of the bridge rail.
- Traffic control procedures will be followed as described in the TXMUTCD during installation, operation and maintenance of the stream gage.



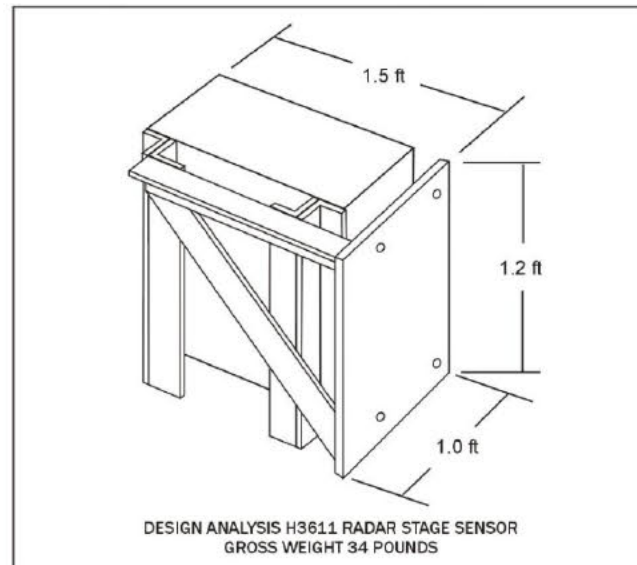
Existing location of streamgage at Colorado River, HWY-90,
Columbus, Colorado County, Texas



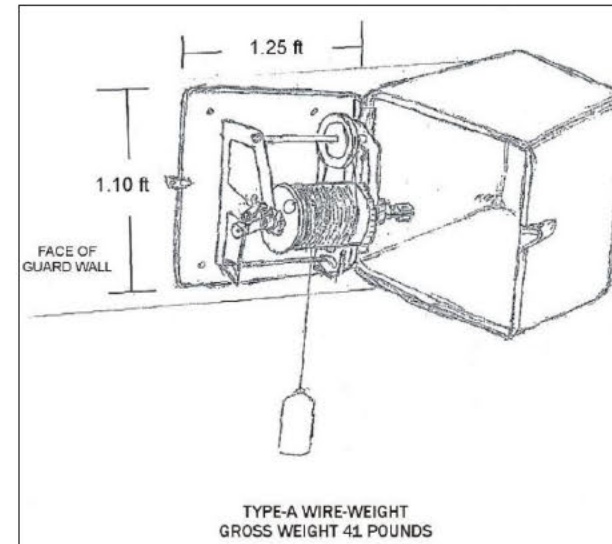
Typical installation of Step-In Type Gage Shelter on stand



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Radar detail (attached to guard wall)



Detail of a wire weight gage (attached to guardrail)



Typical installation of a Stage Sensor Orifice Line



Typical Crest Stage Gage install



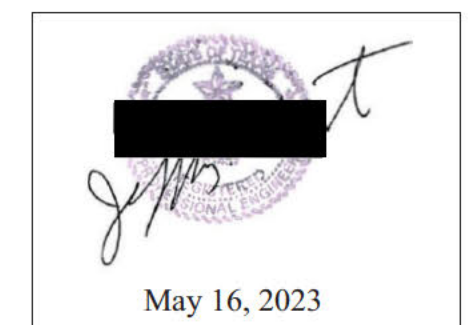
Typical installation of a Raingage



Proposed Gage Shelter location



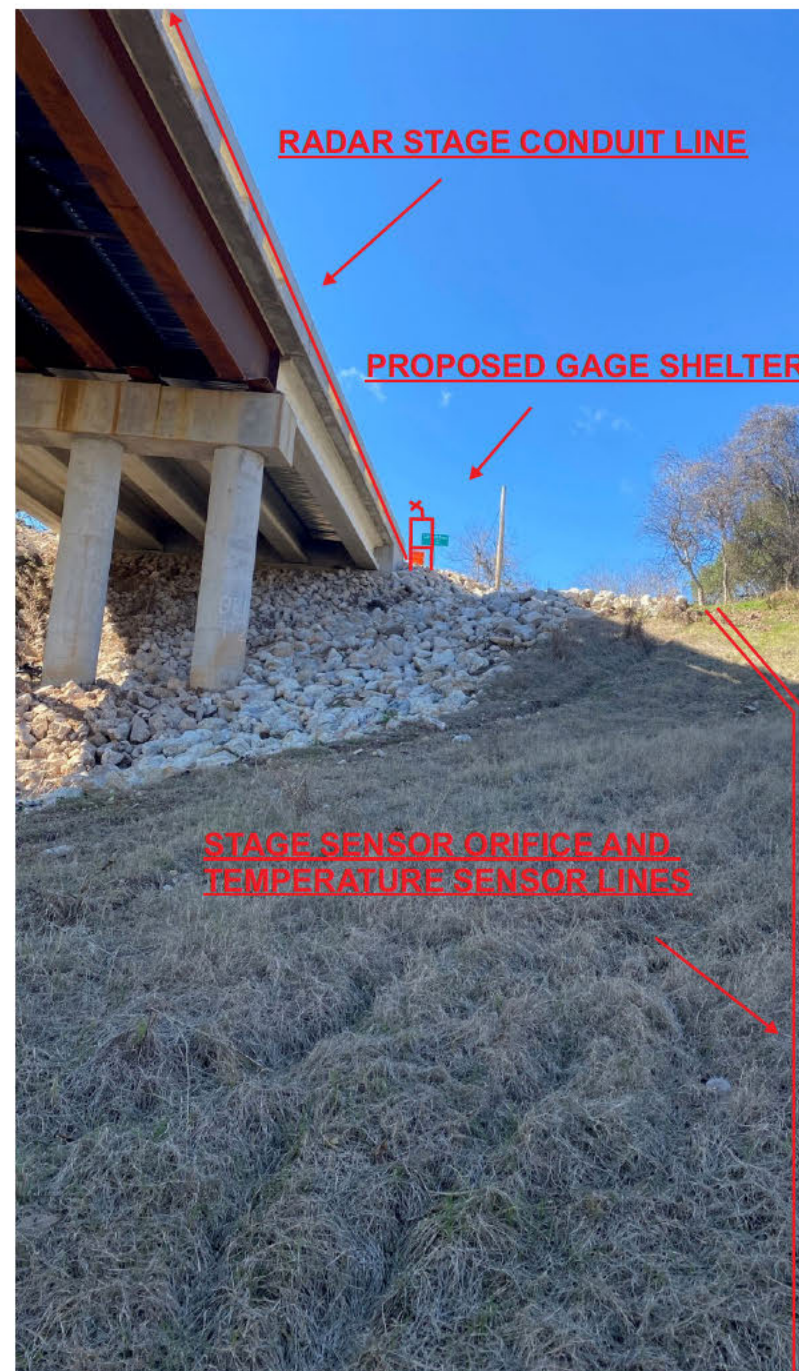
Typical installation of wire-weight gage and radar



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WWT, Radar Stage Sensor, CSG and conduit run at location.



Proposed gage shelter location showing radar conduit and stage/temperature sensor line runs.



Stage Sensor Orifice and Temperature Sensor lines to terminate in water


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 May 16, 2023

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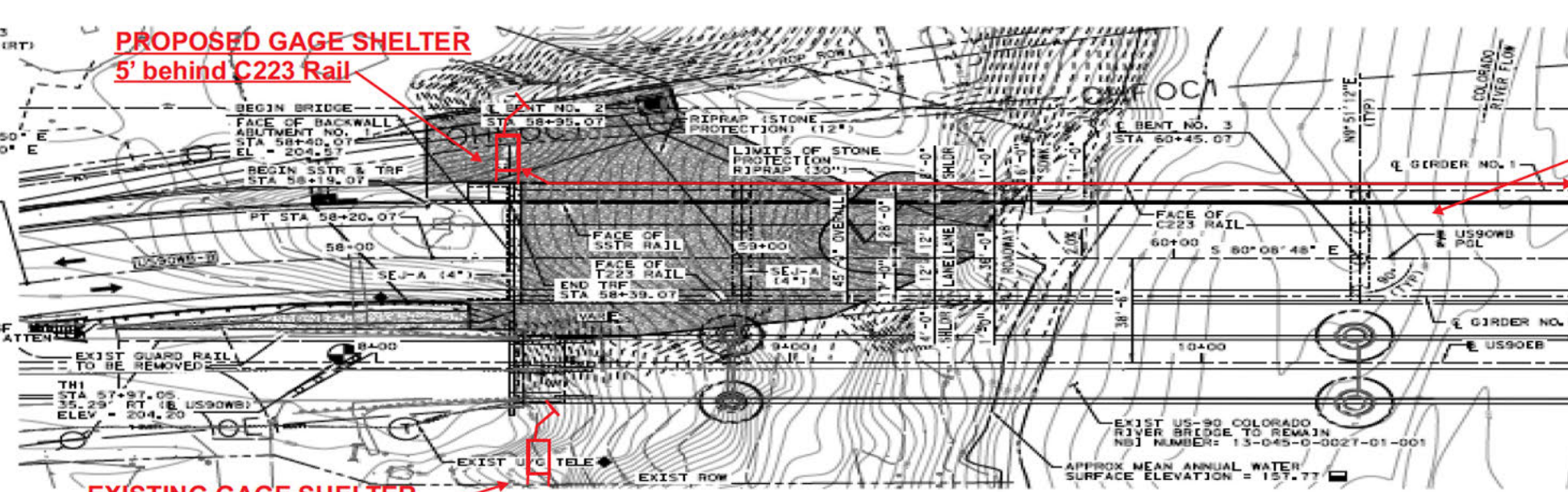
HORIZONTAL CURVE DATA:

US90AB-11

P.L. STA = 57+70.73
DELTA = 11°01'13" (RT)
DEGREE = 11°14'04"
TANGENT = 49.65'
LENGTH = 98.98'
RADIUS = 510.00'
PC STA = 57+21.08
PT STA = 58+20.07
PVI STA = 57+70.73
BACK = N 88°43'59.50" E
FWD = S 80°08'47.50" E

PC STA 57+21.08

TRANS. 75 LF MBGF
WITH CRASH CUSH ATTEN



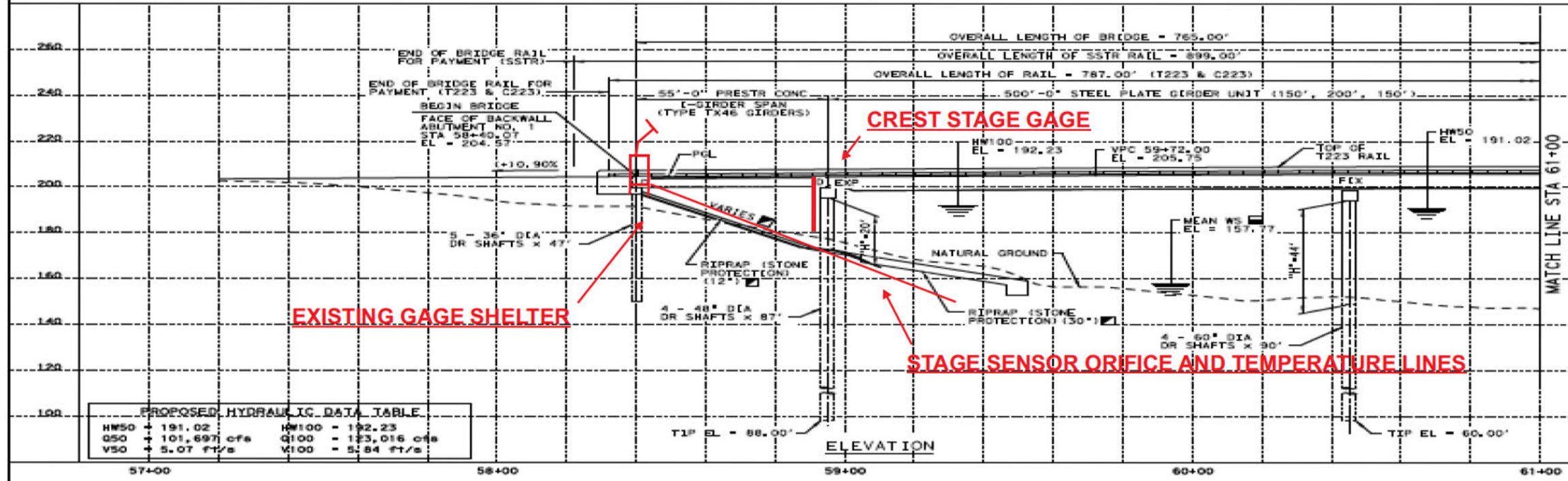
EXISTING GAGE SHELTER

RADAR SENSOR CONDUIT LINE

PLAN

AVERAGE ANNUAL WATER SURFACE
ELEVATION OBTAINED FROM
U.S. G.S. DATA

UTILITIES ARE ATTACHED TO
EXIST US90 BRIDGE



EXISTING GAGE SHELTER

CREST STAGE GAGE

STAGE SENSOR ORIFICE AND TEMPERATURE LINES

PROPOSED HYDRAULIC DATA TABLE

HW50 = 191.02	HW100 = 192.23
Q50 = 101,697 cfs	Q100 = 123,016 cfs
V50 = 5.07 ft/s	V100 = 5.84 ft/s

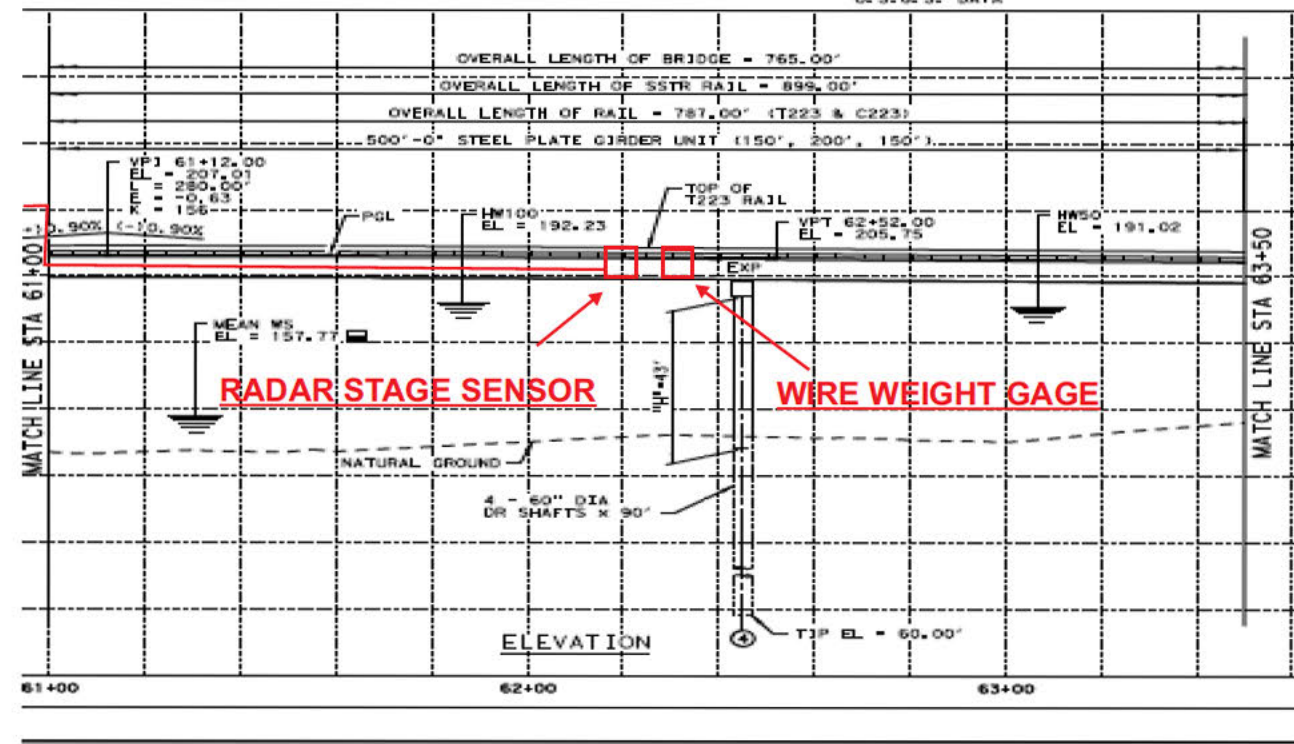
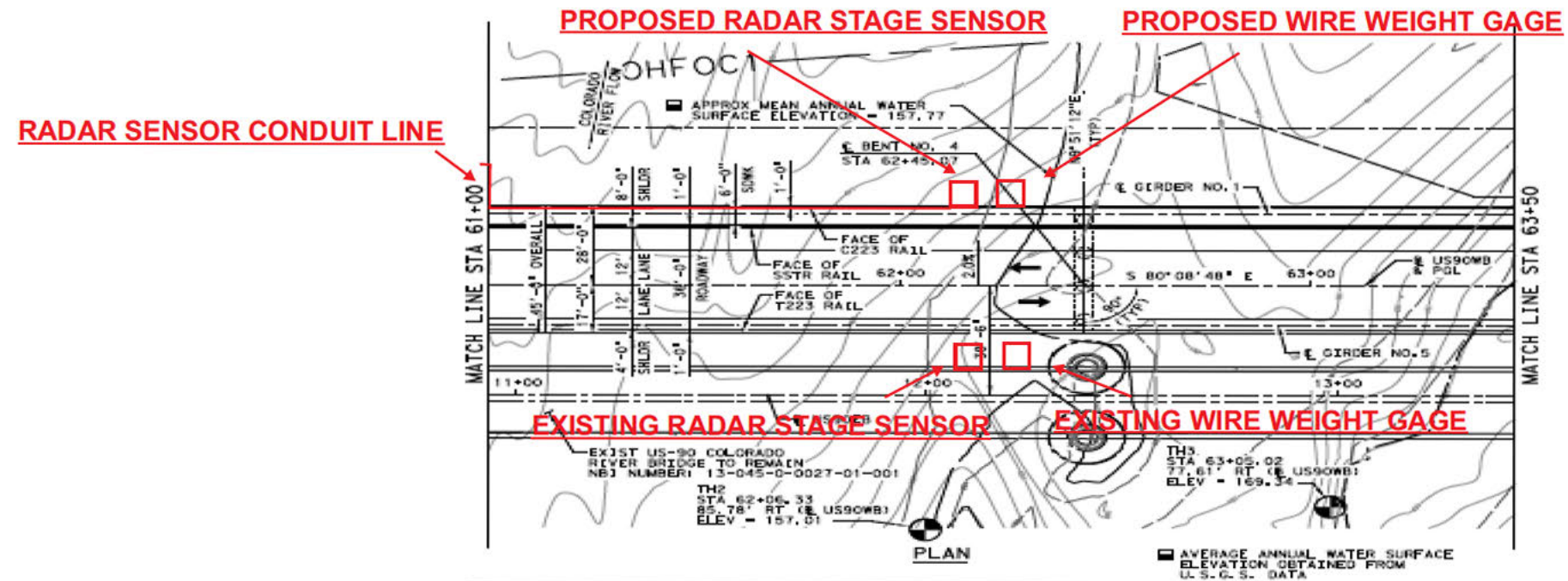
NOTES:
DRAWING SHOWN FOR REFERENCE ONLY. NOT TO SCALE. PAGES ARE NOT SEQUENTIAL.

STREAM GAGE INSTALLATION SPECIFICATIONS,
COLORADO RIVER AT HWY-90, COLUMBUS, COLORADO COUNTY, TEXAS
NBI NO. 13-045-0-0027-01-001

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May 16, 2023
Page 4 of 5

May 16, 2023

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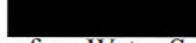


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Page 5 of 5


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