

- Legend**
- Observed Indicators of Change Locations
 - Alignment Reference
 - Study Area

DRAFT

<p>Map Projection: Lambert Conformal Conic Horizontal Datum: North American 1983 Grid: NAD 1983 StatePlane California I FIPS 0401 Feet</p>		<p>County of Humboldt Humboldt Bay Sea Level Rise Adaptation Plan</p> <p>Observation Protocol Locations</p>	<p>Project No. 11191743 Revision No. - Date 6/4/2020</p>
<p>EXHIBIT B-1</p>			

\ghd\neighd\US\Eureka\Projects\56111191743\GIS\Maps\Deliverables\ObservationProtocol\11191743_Observation_Points.mxd
 Print date: 04 Jun 2020 - 13:34

Data source: Shoreline Elevation, NOAA, 2014; Study area, Humboldt County, 2/28/2019; Roads data, US Census, 2013; Creeks, Humboldt County 2015; Orthoimagery, 2016; NAIP; -
 Created by: bviyyan

OBSERVATION LOG INDICATORS OF SHORELINE CHANGE

Purpose: The purpose of this log is to document indicators of change during shoreline observations. Indicators of change are physical attributes that suggest a disturbance or variation compared to either original design or recent prior conditions.

Date/Time: 5/21 2:10 pm
 Observer(s): Drett
 Approx. Tide Elev. at North Spit: 4ft MLW
 Weather Conditions: clear, windy

Shoreline Location: RR, N of Brainerd RR1
 Shoreline Alignment Station (if applicable): 143+00
 GPS Point Take - Yes or No: 1 1
 Photo(s) Taken - Yes or No: 1 1

SHORELINE INDICATORS OF CHANGE – Circle all that apply and depict on graphic below

SHORELINE TYPE – Railroad Prism or Levee/Dike or Embankment or Other _____

Offshore & Foreshore

1. Abrupt change in sediment grain size
2. Visible accretion of mudflat/ salt marsh
3. Visible erosion of mudflat/ salt marsh
4. Active salt marsh plain scarp erosion
5. Channel down-cutting or widening
6. Channel filling or narrowing
7. Water Control Structure (see next page)
8. Other:

Remarks: No salt marsh
No vegetation

Shore

1. Visible erosion or scarping on slope Yes
2. Visible depressions or ruts on top No
3. Visible cracking No
4. Displacement or gaps in revetment/rock No
5. Animal burrows No
6. Abrupt change in vegetation type No veg
7. Water Control Structure (see next page)
8. Other:

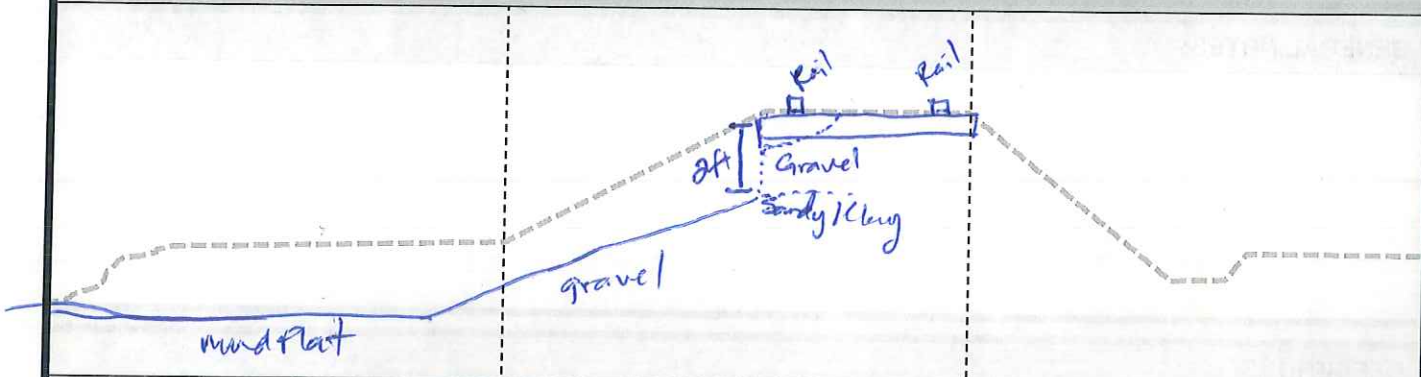
Remarks:

Backshore & Inland

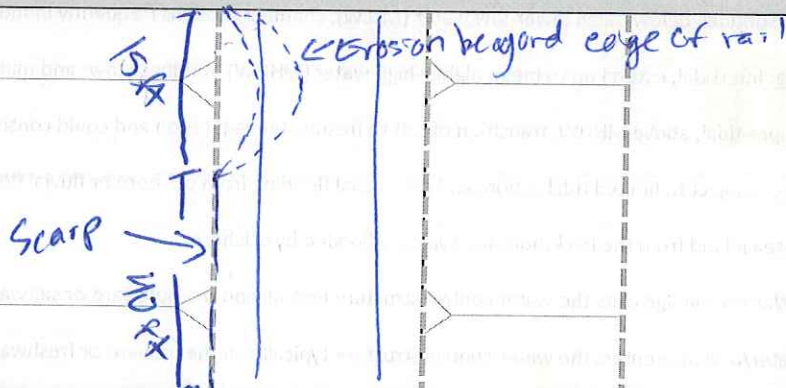
1. Visible erosion or scarping on slope
2. Visible seepage or saturated soil on slope
3. Ponded water in ditch Yes
4. Visible soil or sand boils
5. Animal burrows
6. Abrupt change in vegetation type
7. Water Control Structure (see next page)
8. Other:

Remarks:

TYPICAL SHORELINE SECTION VIEW – Show location of indicators above and dimension below



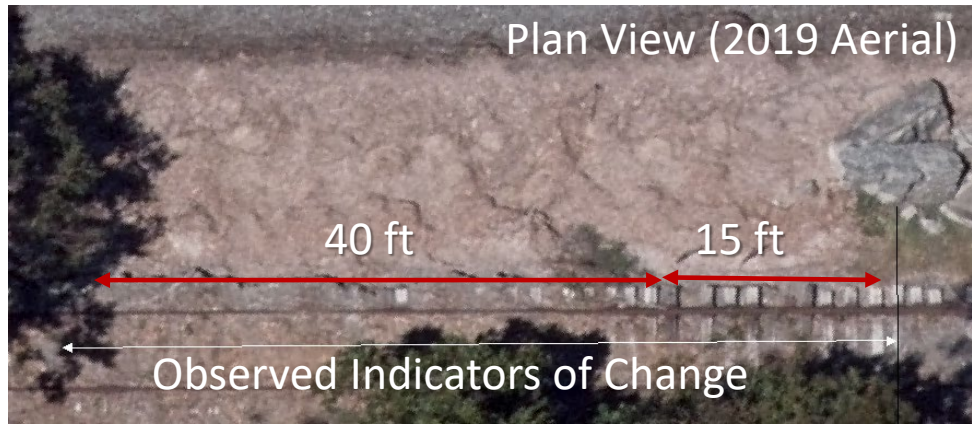
TYPICAL SHORELINE PLAN VIEW – Show location of indicators above and dimension below



Date/Time: 5/21 2:10 pm
Observer(s): Brett
Approx. Tide Elev. at North Spit: 4 ft MLW
Weather Conditions: Clear, Windy

Shoreline Location: RR, N of Brainerd
Shoreline Alignment Station (if applicable): 143+00
GPS Point Take - Yes or No: 143+45-144+00
Photo(s) Taken - Yes or No: Yes

RR 1



**OBSERVATION LOG
INDICATORS OF SHORELINE CHANGE**

Purpose: The purpose of this log is to document indicators of change during shoreline observations. Indicators of change are physical attributes that suggest a disturbance or variation compared to either original design or recent prior conditions.

Date/Time: 5/21/200
 Observer(s): Brett
 Approx. Tide Elev. at North Spit: _____
 Weather Conditions: Wind, clear

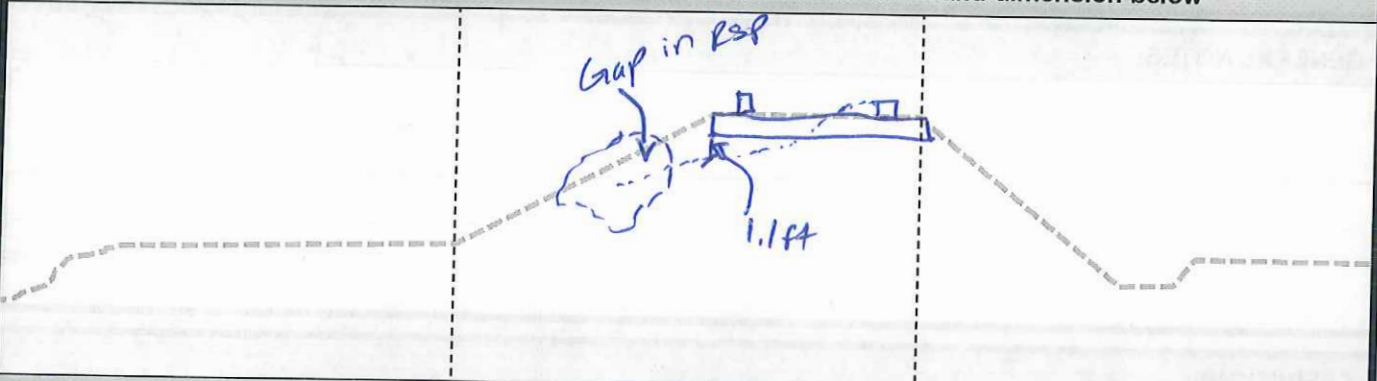
Shoreline Location: RR North of Boaisard RR
 Shoreline Alignment Station (if applicable): 145+00
 GPS Point Take - Yes or No: _____
 Photo(s) Taken - Yes or No: 1 1 1

SHORELINE INDICATORS OF CHANGE – Circle all that apply and depict on graphic below

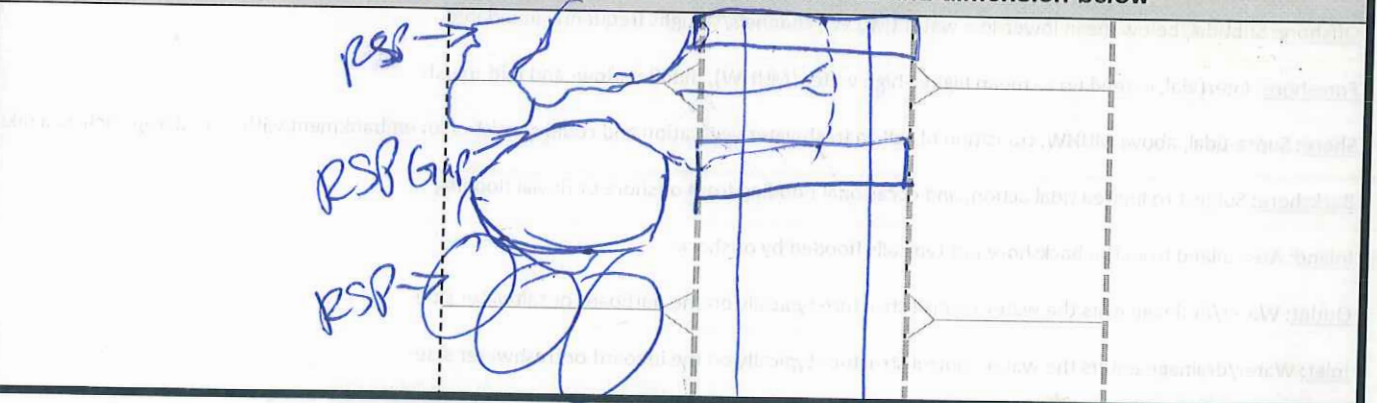
SHORELINE TYPE – Railroad Prism or Levee/Dike or Embankment or Other _____

<u>Offshore & Foreshore</u>	<u>Shore</u>	<u>Backshore & Inland</u>
1. Abrupt change in sediment grain size	1. Visible erosion or scarping on slope <u>yes</u>	1. Visible erosion or scarping on slope <u>NO</u>
2. Visible accretion of mudflat/ salt marsh	2. Visible depressions or ruts on top <u>yes</u>	2. Visible seepage or saturated soil on slope <u>NO</u>
3. Visible erosion of mudflat/ salt marsh	3. Visible cracking <u>NO</u>	3. Ponded water in ditch <u>yes</u>
4. Active salt marsh plain scarp erosion	4. Displacement or gaps in revetment/rock <u>yes</u>	4. Visible soil or sand boils <u>NO</u>
5. Channel down-cutting or widening	5. Animal burrows <u>NO</u>	5. Animal burrows <u>NO</u>
6. Channel filling or narrowing	6. Abrupt change in vegetation type <u>NO</u>	6. Abrupt change in vegetation type <u>NO</u>
7. Water Control Structure (see next page)	7. Water Control Structure (see next page)	7. Water Control Structure (see next page)
8. Other:	8. Other:	8. Other:
Remarks: <u>Gravel & RSP, large gaps in RSP</u>	Remarks: <u>RSP & Gravel large gaps in RSP</u>	Remarks:

TYPICAL SHORELINE SECTION VIEW – Show location of indicators above and dimension below



TYPICAL SHORELINE PLAN VIEW – Show location of indicators above and dimension below



Date/Time: 5/21/200
Observer(s): Brett
Approx. Tide Elev. at North Spit:
Weather Conditions: Wind, clear

Shoreline Location: RR North of Boaisard
Shoreline Alignment Station (if applicable): 145+00
GPS Point Take - Yes or No
Photo(s) Taken - Yes or No 144+15 - 144+25

RR 2



OBSERVATION LOG INDICATORS OF SHORELINE CHANGE

Purpose: The purpose of this log is to document indicators of change during shoreline observations. Indicators of change are physical attributes that suggest a disturbance or variation compared to either original design or recent prior conditions.

Date/Time: 5/21 2³⁰ pm
 Observer(s): Brett
 Approx. Tide Elev. at North Spit: _____
 Weather Conditions: Windy clear

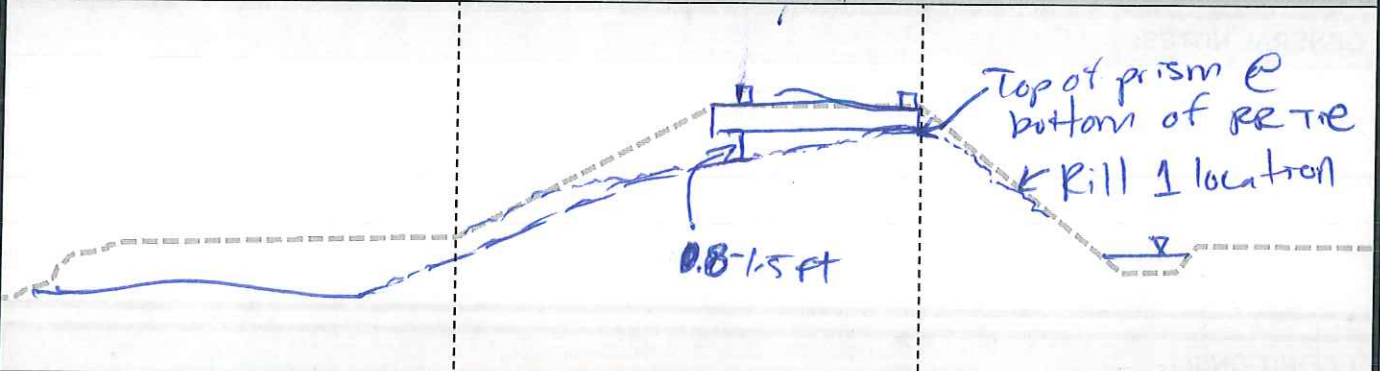
Shoreline Location: RR North of Brainerd RR
 Shoreline Alignment Station (if applicable): 146+00
 GPS Point Take - Yes or No
 Photo(s) Taken - Yes or No

SHORELINE INDICATORS OF CHANGE – Circle all that apply and depict on graphic below

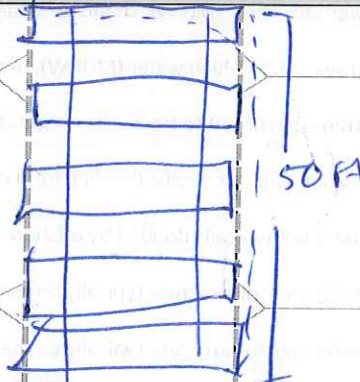
SHORELINE TYPE – Railroad Prism or Levee/Dike or Embankment or Other _____

<u>Offshore & Foreshore</u>	<u>Shore</u>	<u>Backshore & Inland</u>
1. Abrupt change in sediment grain size	1. Visible erosion or scarping on slope <u>YES</u>	1. Visible erosion or scarping on slope <u>Rill</u>
2. Visible accretion of mudflat/ salt marsh	2. Visible depressions or ruts on top <u>YES</u>	2. Visible seepage or saturated soil on slope <u>No</u>
3. Visible erosion of mudflat/ salt marsh	3. Visible cracking <u>N/A</u>	3. Pounded water in ditch <u>YES</u>
4. Active salt marsh plain scarp erosion	4. Displacement or gaps in revetment/rock <u>No</u>	4. Visible soil or sand boils
5. Channel down-cutting or widening	5. Animal burrows <u>No</u>	5. Animal burrows
6. Channel filling or narrowing	6. Abrupt change in vegetation type <u>No veg</u>	6. Abrupt change in vegetation type
7. Water Control Structure (see next page)	7. Water Control Structure (see next page)	7. Water Control Structure (see next page)
8. Other:	8. Other:	8. Other:
Remarks: <u>Gravel → mud flat no salt marsh</u>	Remarks:	Remarks:

TYPICAL SHORELINE SECTION VIEW – Show location of indicators above and dimension below



TYPICAL SHORELINE PLAN VIEW – Show location of indicators above and dimension below



Date/Time: 5/21 2³⁰ pm
Observer(s): Brett
Approx. Tide Elev. at North Spit: _____
Weather Conditions: Windy 104 or

Shoreline Location: RR North of Brainard
Shoreline Alignment Station (if applicable): 146+00
GPS Point Take - Yes or No 144+50 - 144+75
Photo(s) Taken - Yes or No

RR 3



OBSERVATION LOG INDICATORS OF SHORELINE CHANGE

Purpose: The purpose of this log is to document indicators of change during shoreline observations. Indicators of change are physical attributes that suggest a disturbance or variation compared to either original design or recent prior conditions.

Date/Time: 5/21 240
 Observer(s): Brett
 Approx. Tide Elev. at North Spit: _____
 Weather Conditions: Windy, clear

Shoreline Location: RR, North of Breinard RR
 Shoreline Alignment Station (if applicable): 150+00 - 170+00
 GPS Point Take - Yes or No 1 1
 Photo(s) Taken - Yes or No

SHORELINE INDICATORS OF CHANGE – Circle all that apply and depict on graphic below

SHORELINE TYPE – Railroad Prism or Levee/Dike or Embankment or Other _____

Offshore & Foreshore

1. Abrupt change in sediment grain size
2. Visible accretion of mudflat/ salt marsh
3. Visible erosion of mudflat/ salt marsh
4. Active salt marsh plain scarp erosion
5. Channel down-cutting or widening
6. Channel filling or narrowing
7. Water Control Structure (see next page)
8. Other:

Remarks:

*No marsh
gravel → RSP*

Shore

1. Visible erosion or scarping on slope
2. Visible depressions or ruts on top
3. Visible cracking
4. Displacement or gaps in revetment/rock
5. Animal burrows
6. Abrupt change in vegetation type
7. Water Control Structure (see next page)
8. Other:

Remarks:

*RSP + Pickleweed
gravels moved/piled along
east rail.*

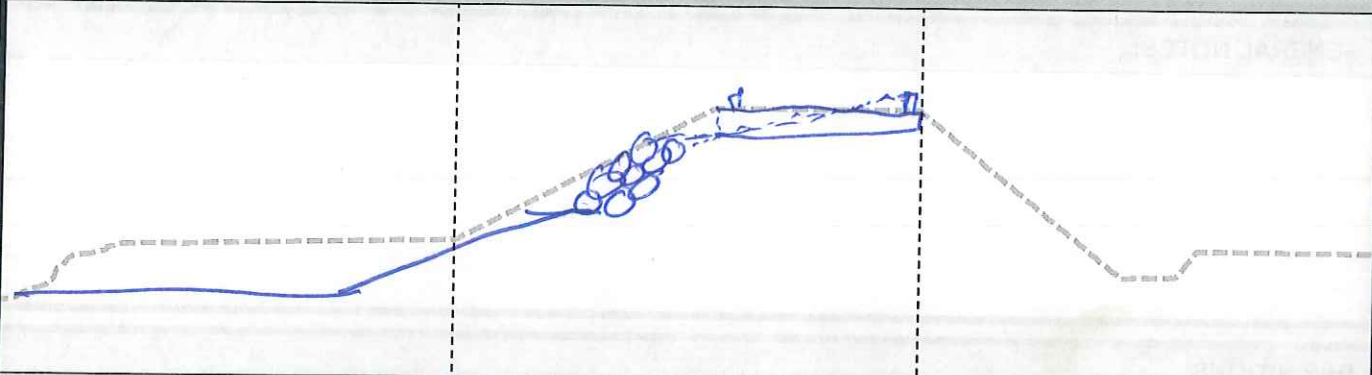
Backshore & Inland

1. Visible erosion or scarping on slope NO
2. Visible seepage or saturated soil on slope
3. Ponded water in ditch
4. Visible soil or sand boils
5. Animal burrows
6. Abrupt change in vegetation type
7. Water Control Structure (see next page)
8. Other:

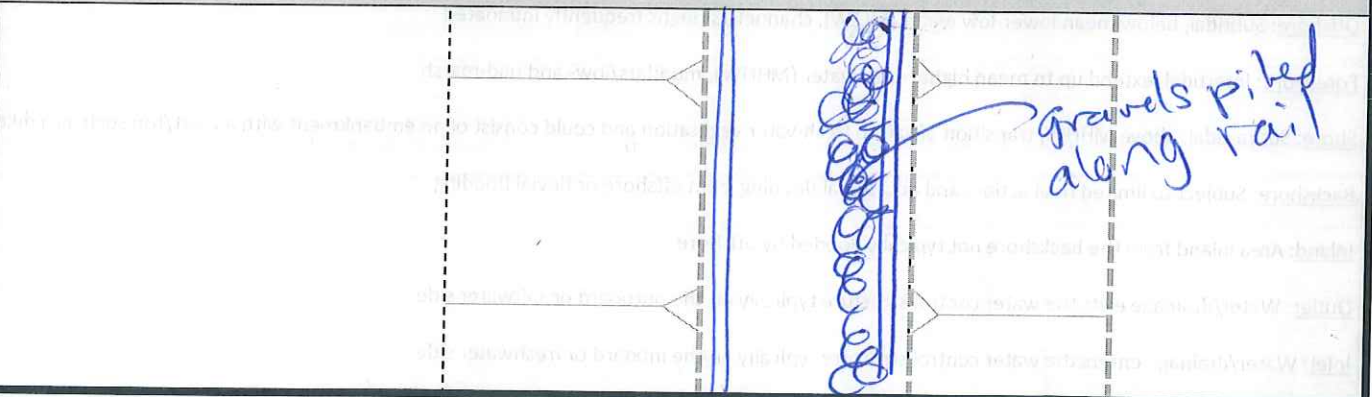
Remarks:

*Vegetated, no visible
erosion*

TYPICAL SHORELINE SECTION VIEW – Show location of indicators above and dimension below



TYPICAL SHORELINE PLAN VIEW – Show location of indicators above and dimension below



**OBSERVATION LOG
INDICATORS OF SHORELINE CHANGE**

Purpose: The purpose of this log is to document indicators of change during shoreline observations. Indicators of change are physical attributes that suggest a disturbance or variation compared to either original design or recent prior conditions.

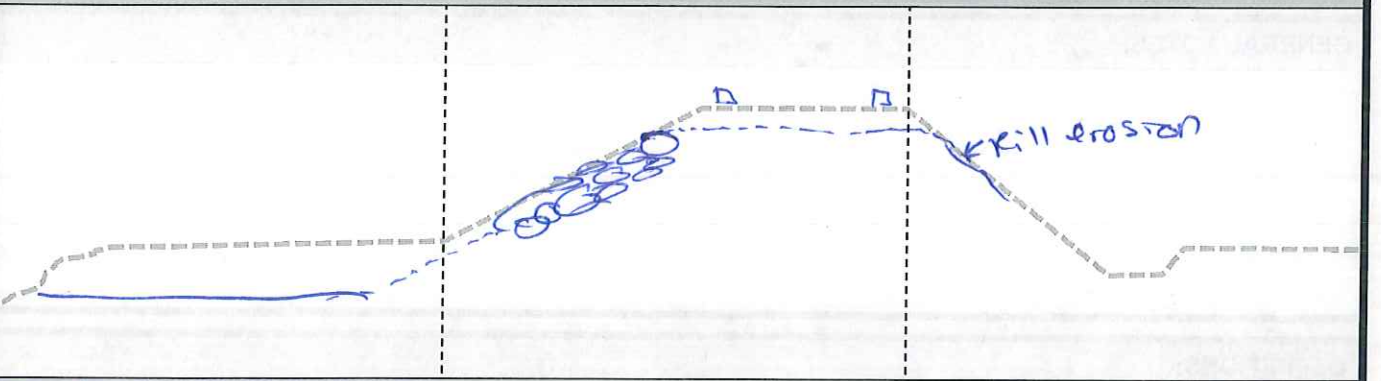
Date/Time: 2:50 5/21
 Observer(s): Brett
 Approx. Tide Elev. at North Spit: _____
 Weather Conditions: Windy, Clear

Shoreline Location: RR, N. Bairard **RR4**
 Shoreline Alignment Station (if applicable): 150+00
 GPS Point Take - Yes or No: 1 1
 Photo(s) Taken - Yes or No: 0 0

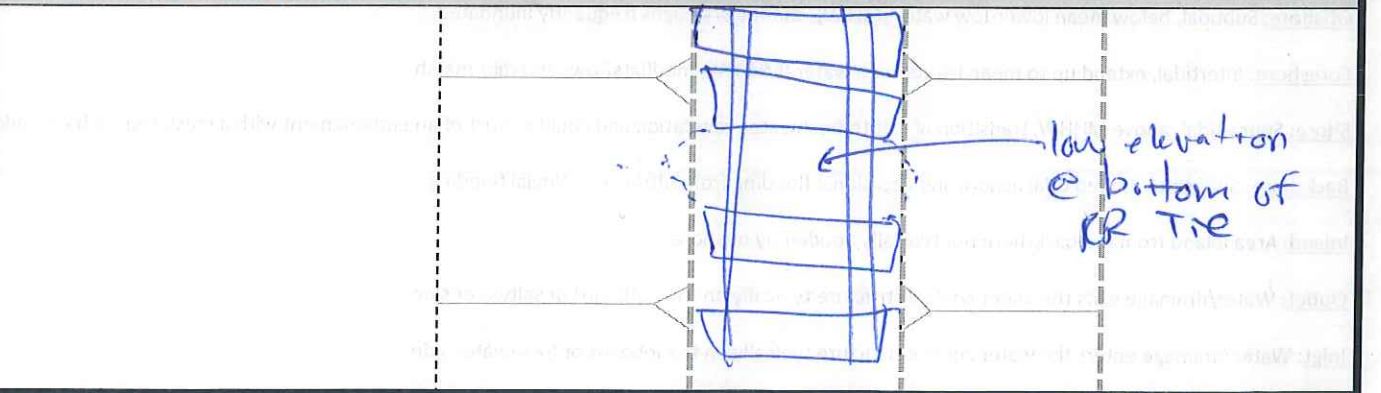
SHORELINE INDICATORS OF CHANGE – Circle all that apply and depict on graphic below
SHORELINE TYPE – Railroad Prism or Levee/Dike or Embankment or Other _____

<u>Offshore & Foreshore</u>	<u>Shore</u>	<u>Backshore & Inland</u>
1. Abrupt change in sediment grain size	1. Visible erosion or scarping on slope <u>YES</u>	1. Visible erosion or scarping on slope <u>YES</u>
2. Visible accretion of mudflat/ salt marsh	2. Visible depressions or ruts on top <u>YES</u>	2. Visible seepage or saturated soil on slope
3. Visible erosion of mudflat/ salt marsh	3. Visible cracking <u>NO</u>	3. Ponded water in ditch
4. Active salt marsh plain scarp erosion	4. Displacement or gaps in revetment/rock <u>YES</u>	4. Visible soil or sand boils
5. Channel down-cutting or widening	5. Animal burrows <u>NO</u>	5. Animal burrows
6. Channel filling or narrowing	6. Abrupt change in vegetation type	6. Abrupt change in vegetation type
7. Water Control Structure (see next page)	7. Water Control Structure (see next page)	7. Water Control Structure (see next page)
8. Other:	8. Other:	8. Other:
Remarks: <u>gravel → mudflat</u>	Remarks: <u>eroded gravel thru RR ties</u>	Remarks: <u>fill erosion w/ vegetation</u>

TYPICAL SHORELINE SECTION VIEW – Show location of indicators above and dimension below



TYPICAL SHORELINE PLAN VIEW – Show location of indicators above and dimension below



Date/Time: 5/21 240
Observer(s): Brett
Approx. Tide Elev. at North Spit: _____
Weather Conditions: Windy, clear

Shoreline Location: RR, North of Brainerd
Shoreline Alignment Station (if applicable): 150+00 - 170+00
GPS Point Take - Yes or No 145+00 - 147+00
Photo(s) Taken - Yes or No Yes

RR 4



OBSERVATION LOG INDICATORS OF SHORELINE CHANGE

Purpose: The purpose of this log is to document indicators of change during shoreline observations. Indicators of change are physical attributes that suggest a disturbance or variation compared to either original design or recent prior conditions.

Date/Time: 5/21 257
 Observer(s): Brett
 Approx. Tide Elev. at North Spit: _____
 Weather Conditions: Windy, clear

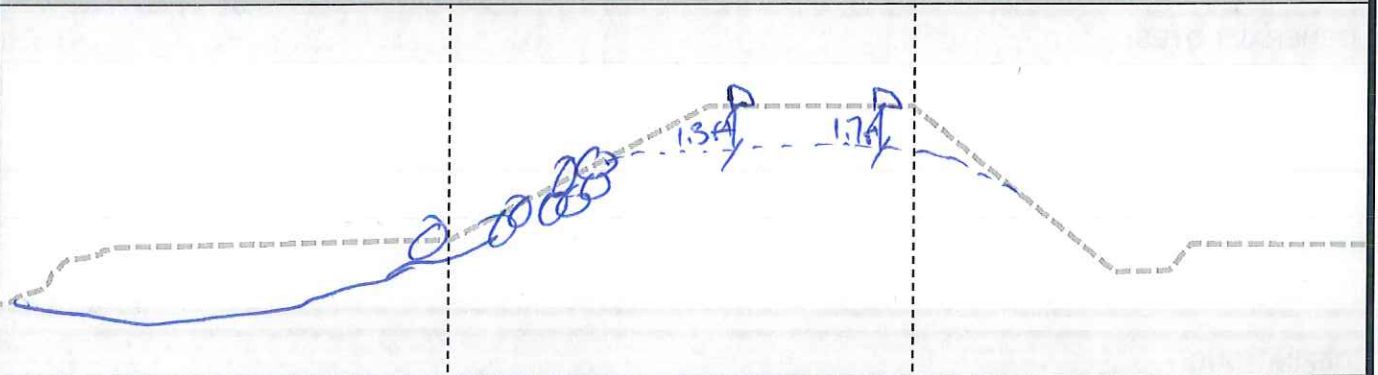
Shoreline Location: RR
 Shoreline Alignment Station (if applicable): 150+00
 GPS Point Take - Yes or No 1 1
 Photo(s) Taken - Yes or No

SHORELINE INDICATORS OF CHANGE – Circle all that apply and depict on graphic below

SHORELINE TYPE – Railroad Prism or Levee/Dike or Embankment or Other _____

<u>Offshore & Foreshore</u>	<u>Shore</u>	<u>Backshore & Inland</u>
1. Abrupt change in sediment grain size	1. Visible erosion or scarping on slope <u>yes</u>	1. Visible erosion or scarping on slope
2. Visible accretion of mudflat/ salt marsh	2. Visible depressions or ruts on top <u>yes</u>	2. Visible seepage or saturated soil on slope
3. Visible erosion of mudflat/ salt marsh	3. Visible cracking	3. Ponded water in ditch
4. Active salt marsh plain scarp erosion	4. Displacement or gaps in revetment/rock	4. Visible soil or sand boils
5. Channel down-cutting or widening	5. Animal burrows	5. Animal burrows
6. Channel filling or narrowing	6. Abrupt change in vegetation type	6. Abrupt change in vegetation type
7. Water Control Structure (see next page)	7. Water Control Structure (see next page)	7. Water Control Structure (see next page)
8. Other:	8. Other:	8. Other:
Remarks:	Remarks:	Remarks:

TYPICAL SHORELINE SECTION VIEW – Show location of indicators above and dimension below



TYPICAL SHORELINE PLAN VIEW – Show location of indicators above and dimension below



OBSERVATION LOG INDICATORS OF SHORELINE CHANGE

Purpose: The purpose of this log is to document indicators of change during shoreline observations. Indicators of change are physical attributes that suggest a disturbance or variation compared to either original design or recent prior conditions.

Date/Time: 5/21 3:15
 Observer(s): Britt
 Approx. Tide Elev. at North Spit: _____
 Weather Conditions: windy, clear

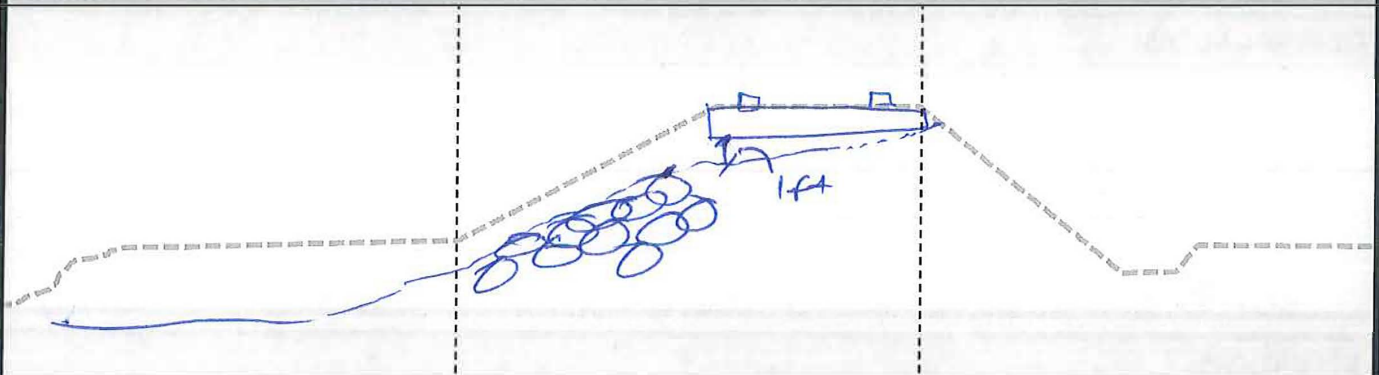
Shoreline Location: RR N. Prisma RR6
 Shoreline Alignment Station (if applicable): 104+00
 GPS Point Take - Yes or No
 Photo(s) Taken - Yes or No

SHORELINE INDICATORS OF CHANGE – Circle all that apply and depict on graphic below

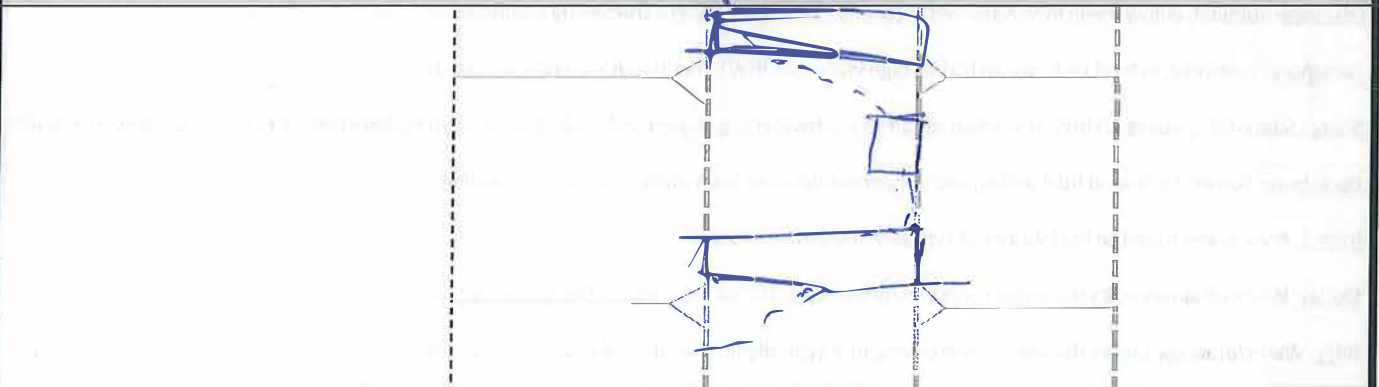
SHORELINE TYPE – Railroad Prism or Levee/Dike or Embankment or Other _____

<u>Offshore & Foreshore</u>	<u>Shore</u>	<u>Backshore & Inland</u>
1. Abrupt change in sediment grain size	1. Visible erosion or scarping on slope <u>Y</u>	1. Visible erosion or scarping on slope
2. Visible accretion of mudflat/ salt marsh	2. Visible depressions or ruts on top <u>Y</u>	2. Visible seepage or saturated soil on slope
3. Visible erosion of mudflat/ salt marsh	3. Visible cracking	3. Ponded water in ditch
4. Active salt marsh plain scarp erosion	4. Displacement or gaps in revetment/rock <u>Y</u>	4. Visible soil or sand boils
5. Channel down-cutting or widening	5. Animal burrows	5. Animal burrows
6. Channel filling or narrowing	6. Abrupt change in vegetation type	6. Abrupt change in vegetation type
7. Water Control Structure (see next page)	7. Water Control Structure (see next page)	7. Water Control Structure (see next page)
8. Other:	8. Other:	8. Other:
Remarks: <u>RSP → Grand → mudflat</u>	Remarks: <u>undersized RSP Erosion btwn trees</u>	Remarks: <u>Vegetated, no erosion</u>

TYPICAL SHORELINE SECTION VIEW – Show location of indicators above and dimension below



TYPICAL SHORELINE PLAN VIEW – Show location of indicators above and dimension below



Date/Time: 8/21 3:15
Observer(s): Bret
Approx. Tide Elev. at North Spit:
Weather Conditions: windy, clear

Shoreline Location: RR N. Braided
Shoreline Alignment Station (if applicable): 104+00
GPS Point Take - Yes or No
Photo(s) Taken - Yes or No

RR 6



OBSERVATION LOG INDICATORS OF SHORELINE CHANGE

Purpose: The purpose of this log is to document indicators of change during shoreline observations. Indicators of change are physical attributes that suggest a disturbance or variation compared to either original design or recent prior conditions.

Date/Time: 5/21 3:45
 Observer(s): Boatt
 Approx. Tide Elev. at North Spit: _____
 Weather Conditions: Windy, clear

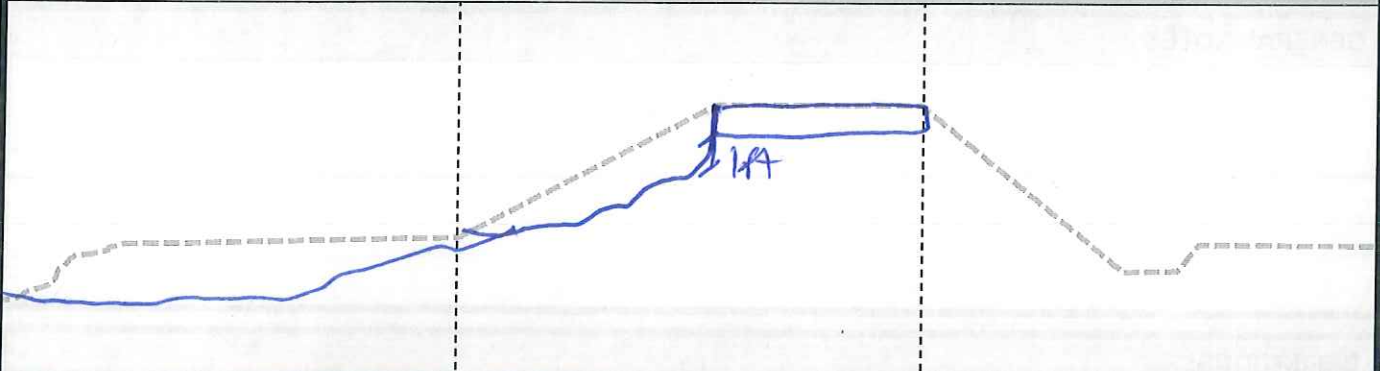
Shoreline Location: RR N of Boardman RR 7
 Shoreline Alignment Station (if applicable): 166+00
 GPS Point Take - Yes or No
 Photo(s) Taken - Yes or No 1 1

SHORELINE INDICATORS OF CHANGE – Circle all that apply and depict on graphic below

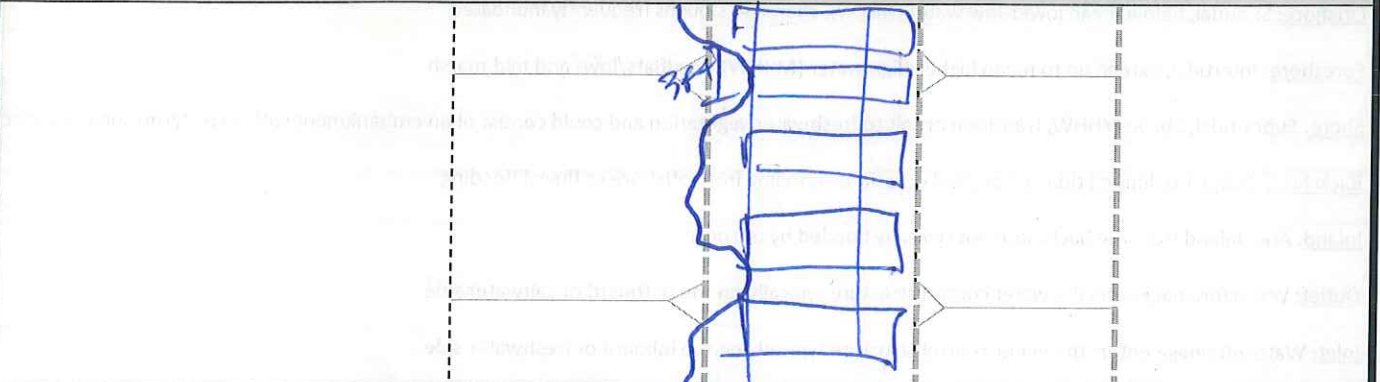
SHORELINE TYPE – Railroad Prism or Levee/Dike or Embankment or Other _____

<u>Offshore & Foreshore</u>	<u>Shore</u>	<u>Backshore & Inland</u>
1. Abrupt change in sediment grain size	1. Visible erosion or scarping on slope <u>Yes</u>	1. Visible erosion or scarping on slope
2. Visible accretion of mudflat/ salt marsh	2. Visible depressions or ruts on top <u>No</u>	2. Visible seepage or saturated soil on slope
3. Visible erosion of mudflat/ salt marsh <u>Yes</u>	3. Visible cracking	3. Ponded water in ditch
4. Active salt marsh plain scarp erosion <u>Yes</u>	4. Displacement or gaps in revetment/rock <u>Yes</u>	4. Visible soil or sand boils
5. Channel down-cutting or widening	5. Animal burrows	5. Animal burrows
6. Channel filling or narrowing	6. Abrupt change in vegetation type	6. Abrupt change in vegetation type
7. Water Control Structure (see next page)	7. Water Control Structure (see next page)	7. Water Control Structure (see next page)
8. Other:	8. Other:	8. Other:
Remarks:	Remarks:	Remarks: <u>No erosion on Back shore</u>

TYPICAL SHORELINE SECTION VIEW – Show location of indicators above and dimension below

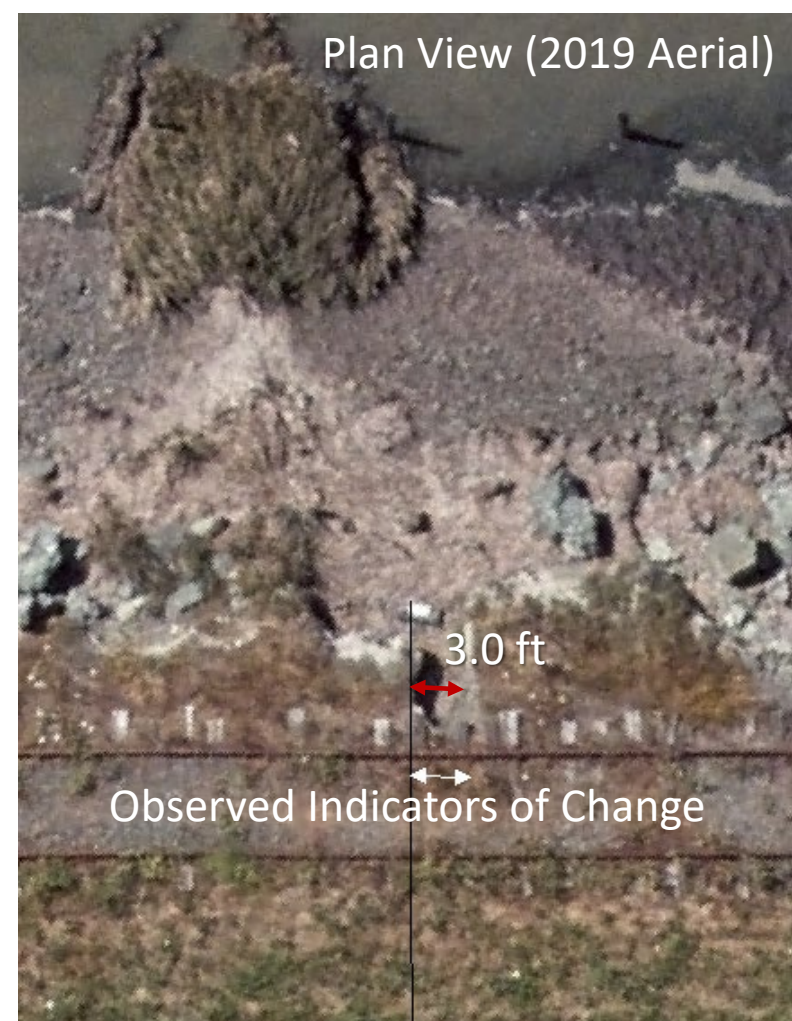
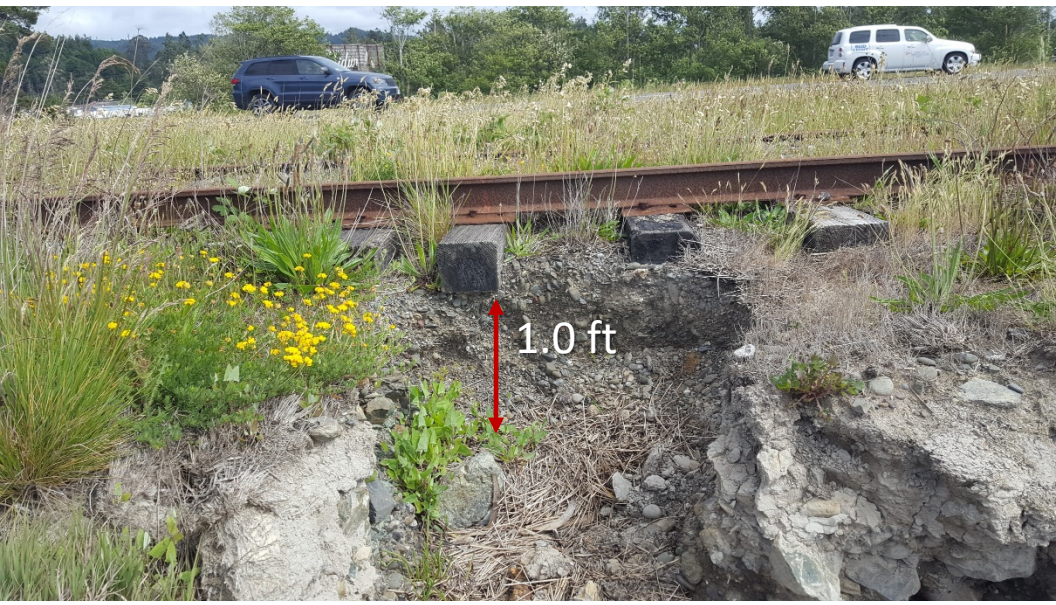


TYPICAL SHORELINE PLAN VIEW – Show location of indicators above and dimension below



Date/Time: 5/21 3:45
Observer(s): Brett
Approx. Tide Elev. at North Spit: _____
Weather Conditions: Windy, Clear

Shoreline Location: pt N of Boardwalk
Shoreline Alignment Station (if applicable): 166+00
GPS Point Take - Yes or No No 166+00 - 166+05
Photo(s) Taken - Yes or No Yes **RR 7**



Plan View (2019 Aerial)

**OBSERVATION LOG
INDICATORS OF SHORELINE CHANGE**

1 1
1 1
1 1

Purpose: The purpose of this log is to document indicators of change during shoreline observations. Indicators of change are physical attributes that suggest a disturbance or variation compared to either original design or recent prior conditions.

Date/Time: 5/21 3/51
 Observer(s): Britt
 Approx. Tide Elev. at North Spit: _____
 Weather Conditions: Windy, Clear

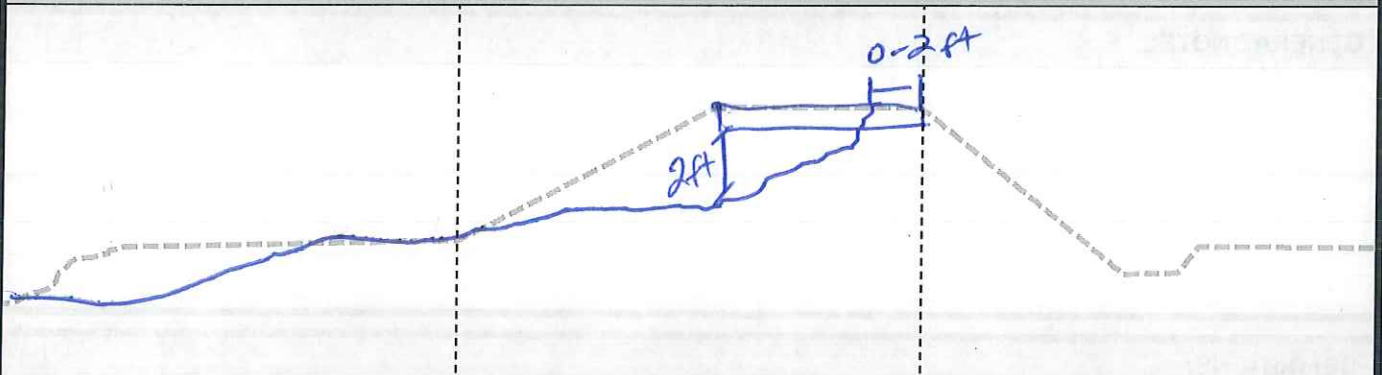
Shoreline Location: RR N. Baird RR 8A, 8B, 8C
 Shoreline Alignment Station (if applicable): 164100, 164150
 GPS Point Take - Yes or No
 Photo(s) Taken - Yes or No 165100

SHORELINE INDICATORS OF CHANGE – Circle all that apply and depict on graphic below

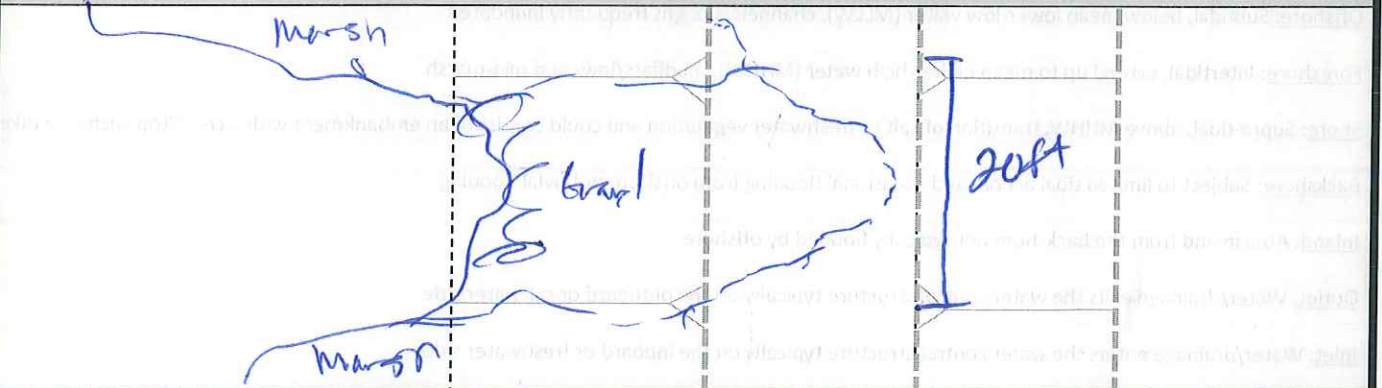
SHORELINE TYPE – Railroad Prism or Levee/Dike or Embankment or Other _____

<u>Offshore & Foreshore</u>	<u>Shore</u>	<u>Backshore & Inland</u>
1. Abrupt change in sediment grain size	1. Visible erosion or scarping on slope <u>yes</u>	1. Visible erosion or scarping on slope <u>no</u>
2. Visible accretion of mudflat/ salt marsh	2. Visible depressions or ruts on top <u>yes</u>	2. Visible seepage or saturated soil on slope
3. Visible erosion of mudflat/ salt marsh <u>yes</u>	3. Visible cracking	3. Ponded water in ditch
4. Active salt marsh plain scarp erosion <u>yes</u>	4. Displacement or gaps in revetment/rock	4. Visible soil or sand boils
5. Channel down-cutting or widening	5. Animal burrows	5. Animal burrows
6. Channel filling or narrowing	6. Abrupt change in vegetation type	6. Abrupt change in vegetation type
7. Water Control Structure (see next page)	7. Water Control Structure (see next page)	7. Water Control Structure (see next page)
8. Other:	8. Other:	8. Other:
Remarks:	Remarks:	Remarks:

TYPICAL SHORELINE SECTION VIEW – Show location of indicators above and dimension below



TYPICAL SHORELINE PLAN VIEW – Show location of indicators above and dimension below



Date/Time: 5/21 3/81
Observer(s): Britt
Approx. Tide Elev. at North Spit: _____
Weather Conditions: Windy, Clear

Shoreline Location: Off N. Bairard
Shoreline Alignment Station (if applicable): 166+70 - 166+90
GPS Point Take - Yes or No: 167+50 - 168+00
Photo(s) Taken - Yes or No: 168+25 - 168+50

RR 8A



OBSERVATION LOG INDICATORS OF SHORELINE CHANGE

Purpose: The purpose of this log is to document indicators of change during shoreline observations. Indicators of change are physical attributes that suggest a disturbance or variation compared to either original design or recent prior conditions.

Date/Time: 5/21, 9:00
 Observer(s): Boett
 Approx. Tide Elev. at North Spit: _____
 Weather Conditions: Clear, Windy

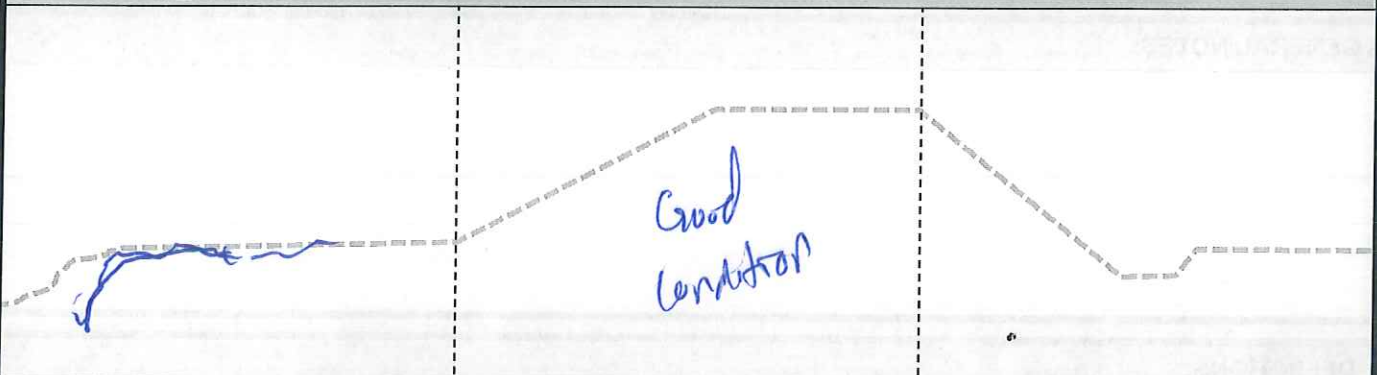
Shoreline Location: RR N. Brainerd RR 9
 Shoreline Alignment Station (if applicable): 179+00
 GPS Point Take - Yes or No: _____
 Photo(s) Taken - Yes or No: 1 1 1

SHORELINE INDICATORS OF CHANGE – Circle all that apply and depict on graphic below

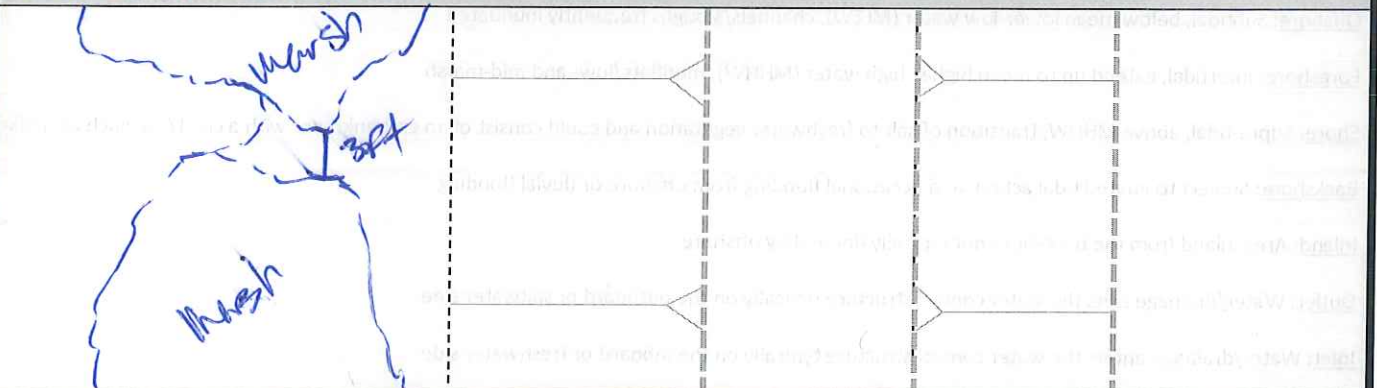
SHORELINE TYPE – Railroad Prism or Levee/Dike or Embankment or Other _____

<u>Offshore & Foreshore</u>	<u>Shore</u>	<u>Backshore & Inland</u>
1. Abrupt change in sediment grain size 2. Visible accretion of mudflat/ salt marsh 3. Visible erosion of mudflat/ salt marsh 4. Active salt marsh plain scarp erosion 5. Channel down-cutting or widening 6. Channel filling or narrowing 7. Water Control Structure (see next page) 8. Other: _____ Remarks: _____	1. Visible erosion or scarping on slope 2. Visible depressions or ruts on top 3. Visible cracking 4. Displacement or gaps in revetment/rock 5. Animal burrows 6. Abrupt change in vegetation type 7. Water Control Structure (see next page) 8. Other: _____ Remarks: _____	1. Visible erosion or scarping on slope 2. Visible seepage or saturated soil on slope 3. Ponded water in ditch 4. Visible soil or sand boils 5. Animal burrows 6. Abrupt change in vegetation type 7. Water Control Structure (see next page) 8. Other: _____ Remarks: _____

TYPICAL SHORELINE SECTION VIEW – Show location of indicators above and dimension below



TYPICAL SHORELINE PLAN VIEW – Show location of indicators above and dimension below



Date/Time: 5/21 4:00
Observer(s): Boett
Approx. Tide Elev. at North Spit: _____
Weather Conditions: Clear, Windy

Shoreline Location: RR N. Brainerd
Shoreline Alignment Station (if applicable): 179+00
GPS Point Take - Yes or No: 180+75 - 181+00
Photo(s) Taken - Yes or No: _____

RR 9



Observed Indicators of Change

Plan View (2019 Aerial)



**OBSERVATION LOG
INDICATORS OF SHORELINE CHANGE**

Purpose: The purpose of this log is to document indicators of change during shoreline observations. Indicators of change are physical attributes that suggest a disturbance or variation compared to either original design or recent prior conditions.

Date/Time: 5/25/2020 2pm
 Observer(s): Brett
 Approx. Tide Elev. at North Spit: _____
 Weather Conditions: Clear, Windy

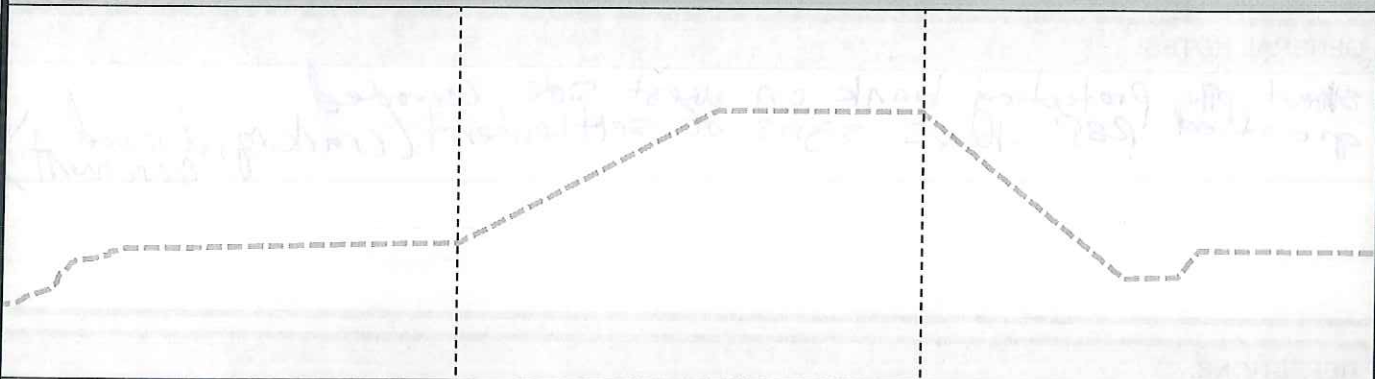
Shoreline Location: Eureka Slough, 101 drainage Tide Gate
 Shoreline Alignment Station (if applicable): Caltrans Tide Gate to Eureka Slough
 GPS Point Take - Yes or No
 Photo(s) Taken - Yes or No

SHORELINE INDICATORS OF CHANGE – Circle all that apply and depict on graphic below

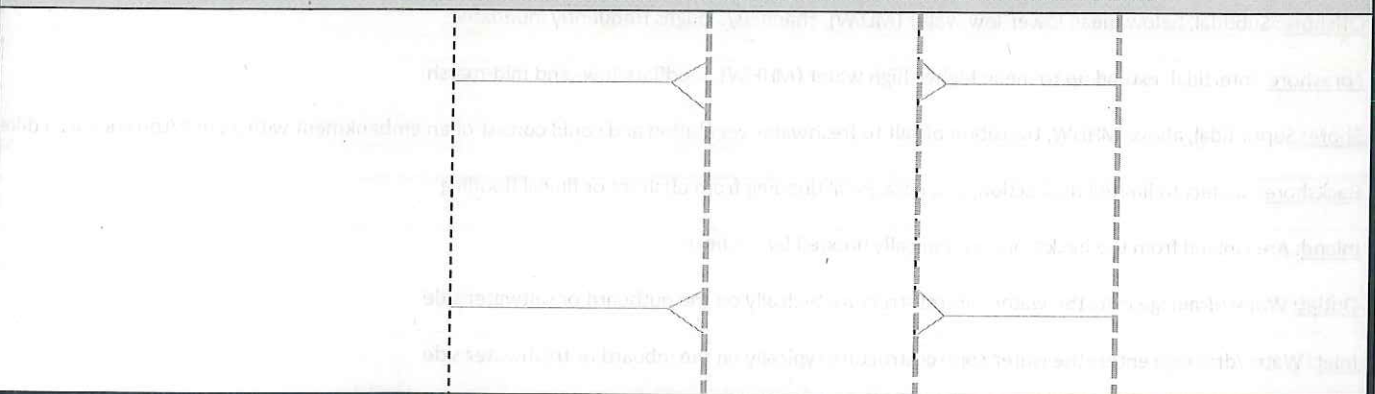
SHORELINE TYPE – Railroad Prism or Levee/Dike or Embankment or Other _____

<u>Offshore & Foreshore</u>	<u>Shore</u>	<u>Backshore & Inland</u>
1. Abrupt change in sediment grain size	1. Visible erosion or scarping on slope	1. Visible erosion or scarping on slope
2. Visible accretion of mudflat/ salt marsh	2. Visible depressions or ruts on top	2. Visible seepage or saturated soil on slope
3. Visible erosion of mudflat/ salt marsh	3. Visible cracking	3. Ponded water in ditch
4. Active salt marsh plain scarp erosion	4. Displacement or gaps in revetment/rock	4. Visible soil or sand boils
5. Channel down-cutting or widening	5. Animal burrows	5. Animal burrows
6. Channel filling or narrowing	6. Abrupt change in vegetation type	6. Abrupt change in vegetation type
7. Water Control Structure (see next page)	7. Water Control Structure (see next page)	7. Water Control Structure (see next page)
8. Other: _____	8. Other: _____	8. Other: _____
Remarks: <u>Tide gate structure - see other side →</u>	Remarks:	Remarks:

TYPICAL SHORELINE SECTION VIEW – Show location of indicators above and dimension below



TYPICAL SHORELINE PLAN VIEW – Show location of indicators above and dimension below



**OBSERVATION LOG
INDICATORS OF SHORELINE CHANGE**

**WATER CONTROL STRUCTURE INDICATORS OF CHANGE – Circle all that apply and depict on Page 1 graphic
WATER CONTROL STRUCTURES – Culvert or Tide Gate Structure or Flashboard Riser or Other _____**

Embankment at Outlet

- a. Visible erosion or scarping on embankment slope or top **No**
- b. Embankment vegetation (bare, grass, shrubs, trees)
- c. Revetment present (rock, concrete, other _____)
- d. Displacement or gaps in revetment **No**
- e. Animal burrows **No**
- f. Other: _____

Remarks: _____

Embankment at Inlet

- a. Visible erosion or scarping on embankment slope or top **No**
- b. Embankment vegetation (bare, grass, shrubs, trees)
- c. Revetment present (rock, concrete, other concrete headwall)
- d. Displacement or gaps in revetment **N/A**
- e. Animal burrows **No**
- f. Other: _____

Remarks: _____

Structure Outlet

- g. Size/ dimensions _____
- h. Material type and condition sheet pile → corrosion
concrete → good
- i. Water level relative to Inlet _____
- j. Visible flow direction or plugged _____
- k. Gate operable or N/A _____
- l. Concrete headwall and condition _____
- m. Other: _____

Remarks: _____

Structure Inlet

- g. Size/dimension _____
- h. Material type and condition Concrete (good)
Metal (new)
- i. Water level relative to Outlet _____
- j. Visible flow direction or plugged rising tide
Fish window
flowing
- k. Gate operable or N/A _____
- l. Concrete headwall and condition _____
- m. Other: _____

Remarks: _____

GENERAL NOTES:

sheet pile protecting bank on west side, corroded
grouted RSP shows signs of settlement (cracking, downward movement)

DEFINITIONS:

Offshore: Subtidal, below mean lower-low water (MLLW), channels/sloughs frequently inundated

Foreshore: Intertidal, extend up to mean higher-high water (MHHW), mudflats/low- and mid-marsh

Shore: Supra-tidal, above MHHW, transition of salt to freshwater vegetation and could consist of an embankment with a crest/top such as a dike

Backshore: Subject to limited tidal action, and occasional flooding from offshore or fluvial flooding

Inland: Area inland from the backshore not typically flooded by offshore

Outlet: Water/drainage exits the water control structure typically on the outboard or saltwater side

Inlet: Water/drainage enters the water control structure typically on the inboard or freshwater side

Date/Time: 5/25/2020 2pm
Observer(s): Brett
Approx. Tide Elev. at North Spit: _____
Weather Conditions: Clear, Windy

Shoreline Location: Eureka Slough, 101 drainage Tide Gate
Shoreline Alignment Station (if applicable): _____
GPS Point Take - Yes or No
Photo(s) Taken - Yes or No



**OBSERVATION LOG
INDICATORS OF SHORELINE CHANGE**

Purpose: The purpose of this log is to document indicators of change during shoreline observations. Indicators of change are physical attributes that suggest a disturbance or variation compared to either original design or recent prior conditions.

Date/Time: 5/25/2020 215
 Observer(s): Brett
 Approx. Tide Elev. at North Spit: _____
 Weather Conditions: Sunny, wind

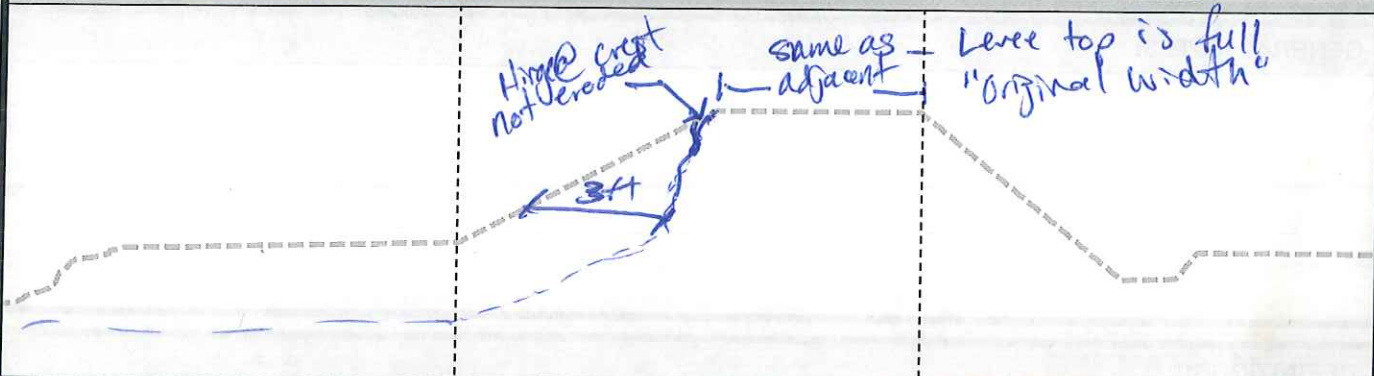
Shoreline Location: Airport Levee ①
 Shoreline Alignment Station (if applicable): _____
 GPS Point Take - Yes or No _____
 Photo(s) Taken - Yes or No _____

SHORELINE INDICATORS OF CHANGE – Circle all that apply and depict on graphic below

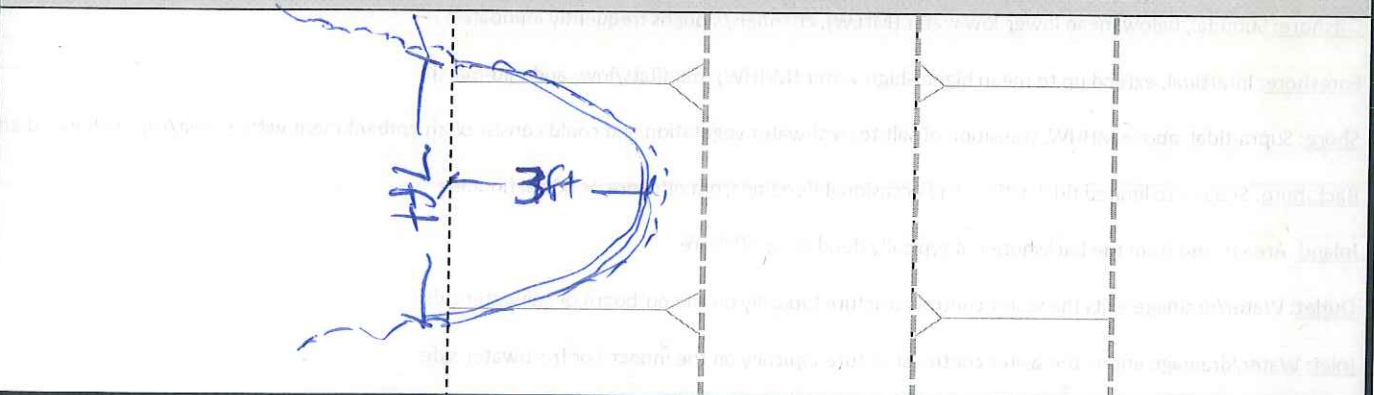
SHORELINE TYPE – Railroad Prism or Levee/Dike or Embankment or Other _____

<u>Offshore & Foreshore</u>	<u>Shore</u>	<u>Backshore & Inland</u>
1. Abrupt change in sediment grain size	1. Visible erosion or scarping on slope <u>YES</u>	1. Visible erosion or scarping on slope
2. Visible accretion of mudflat/ salt marsh	2. Visible depressions or ruts on top <u>NO</u>	2. Visible seepage or saturated soil on slope
3. Visible erosion of mudflat/ salt marsh	3. Visible cracking <u>NO</u>	3. Ponded water in ditch
4. Active salt marsh plain scarp erosion	4. Displacement or gaps in revetment/rock <u>N/A</u>	4. Visible soil or sand boils
5. Channel down-cutting or widening	5. Animal burrows <u>NO</u>	5. Animal burrows
6. Channel filling or narrowing	6. Abrupt change in vegetation type <u>NO</u>	6. Abrupt change in vegetation type
7. Water Control Structure (see next page)	7. Water Control Structure (see next page)	7. Water Control Structure (see next page)
8. Other:	8. Other:	8. Other:
Remarks: <u>mudflat → slope</u>	Remarks:	Remarks: <u>Vegetated</u>

TYPICAL SHORELINE SECTION VIEW – Show location of indicators above and dimension below

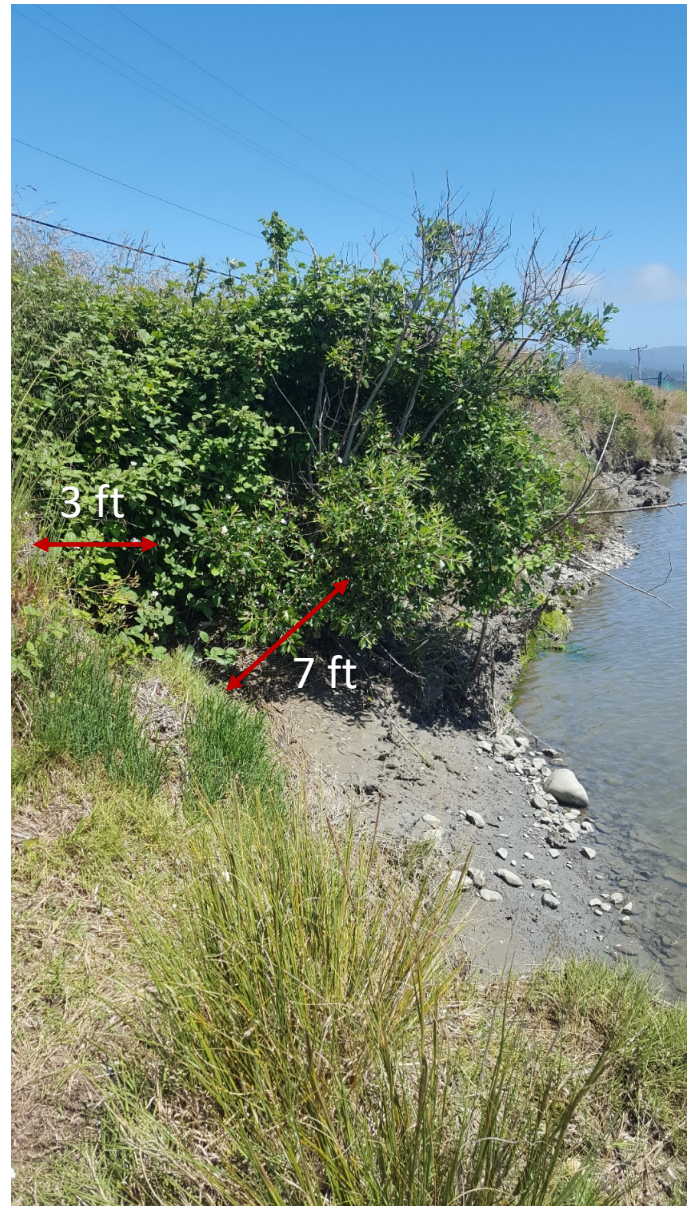


TYPICAL SHORELINE PLAN VIEW – Show location of indicators above and dimension below



Date/Time: 5/25/2020 2:15
Observer(s): Brett
Approx. Tide Elev. at North Spit: _____
Weather Conditions: Sunny, wind

Shoreline Location: Airport Levee ①
Shoreline Alignment Station (if applicable): _____
GPS Point Take - Yes or No
Photo(s) Taken - Yes or No



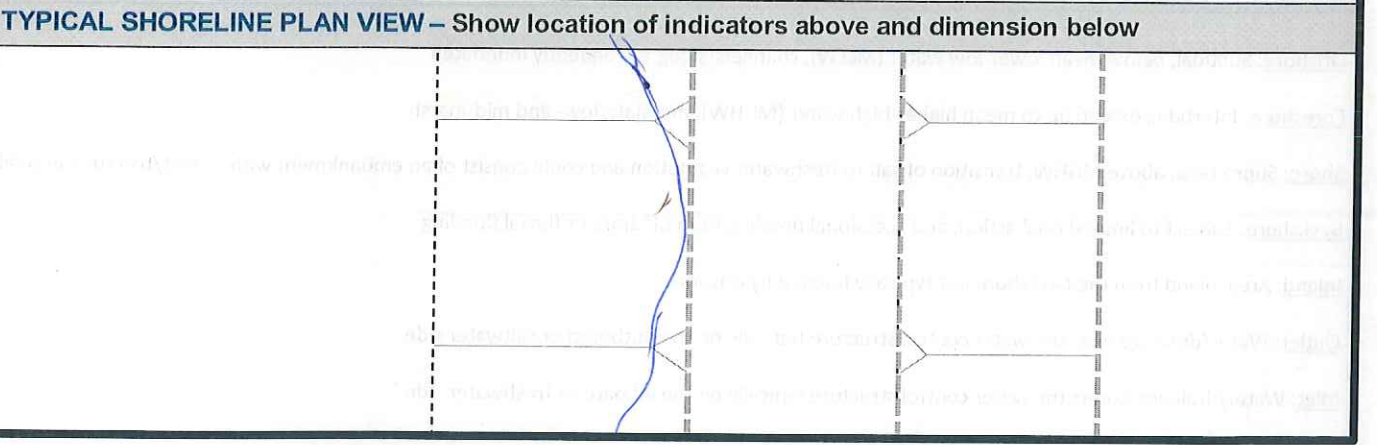
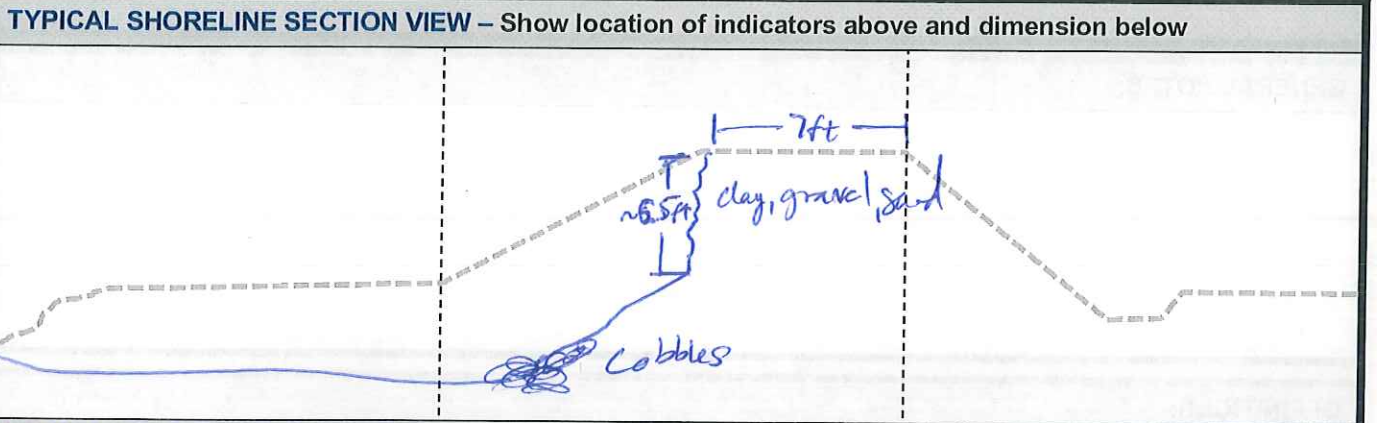
OBSERVATION LOG INDICATORS OF SHORELINE CHANGE

Purpose: The purpose of this log is to document indicators of change during shoreline observations. Indicators of change are physical attributes that suggest a disturbance or variation compared to either original design or recent prior conditions.

Date/Time: 5/25/2020 2:30
 Observer(s): Brett
 Approx. Tide Elev. at North Spit: _____
 Weather Conditions: Clear, Wind

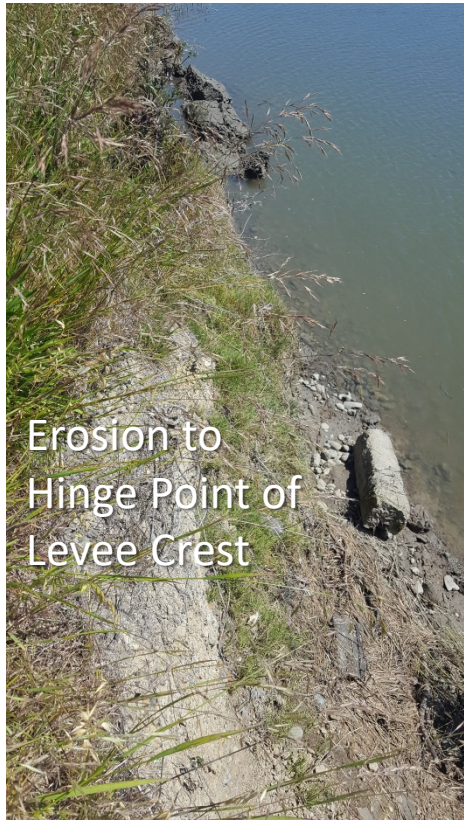
Shoreline Location: Airport Levee ②
 Shoreline Alignment Station (if applicable): _____
 GPS Point Take - Yes or No _____
 Photo(s) Taken - Yes or No _____

SHORELINE INDICATORS OF CHANGE – Circle all that apply and depict on graphic below		
SHORELINE TYPE – Railroad Prism or Levee/Dike or Embankment or Other _____		
<u>Offshore & Foreshore</u>	<u>Shore</u>	<u>Backshore & Inland</u>
1. Abrupt change in sediment grain size 2. Visible accretion of mudflat/ salt marsh 3. Visible erosion of mudflat/ salt marsh 4. Active salt marsh plain scarp erosion 5. Channel down-cutting or widening 6. Channel filling or narrowing 7. Water Control Structure (see next page) 8. Other: _____ Remarks: _____	1. Visible erosion or scarping on slope 2. Visible depressions or ruts on top 3. Visible cracking 4. Displacement or gaps in revetment/rock 5. Animal burrows 6. Abrupt change in vegetation type 7. Water Control Structure (see next page) 8. Other: _____ Remarks: _____	1. Visible erosion or scarping on slope 2. Visible seepage or saturated soil on slope 3. Ponded water in ditch 4. Visible soil or sand boils 5. Animal burrows 6. Abrupt change in vegetation type 7. Water Control Structure (see next page) 8. Other: _____ Remarks: _____



Date/Time: 5/25/2020 2:30
Observer(s): Brett
Approx. Tide Elev. at North Spit: _____
Weather Conditions: Clear, Wind

Shoreline Location: Airport Levee 2
Shoreline Alignment Station (if applicable): _____
GPS Point Take - Yes or No _____
Photo(s) Taken - Yes or No _____



**OBSERVATION LOG
INDICATORS OF SHORELINE CHANGE**

Purpose: The purpose of this log is to document indicators of change during shoreline observations. Indicators of change are physical attributes that suggest a disturbance or variation compared to either original design or recent prior conditions.

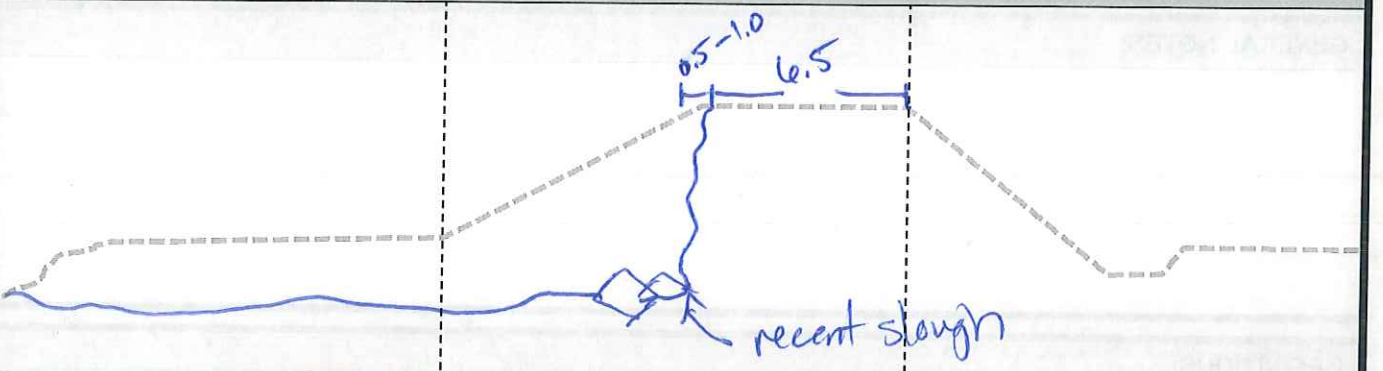
Date/Time: 9/25/2020 2³¹
 Observer(s): bratt
 Approx. Tide Elev. at North Spit: _____
 Weather Conditions: Sunny clear wind

Shoreline Location: Airport Levee ③
 Shoreline Alignment Station (if applicable): _____
 GPS Point Take - Yes or No
 Photo(s) Taken - Yes or No

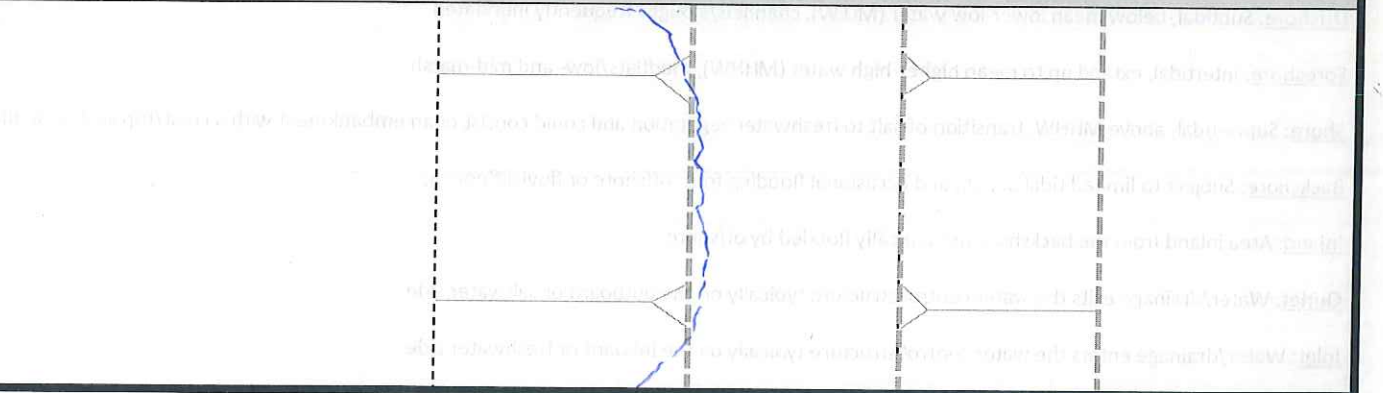
SHORELINE INDICATORS OF CHANGE – Circle all that apply and depict on graphic below
SHORELINE TYPE – Railroad Prism or Levee/Dike or Embankment or Other _____

<u>Offshore & Foreshore</u>	<u>Shore</u>	<u>Backshore & Inland</u>
1. Abrupt change in sediment grain size	1. Visible erosion or scarping on slope <u>Yes</u>	1. Visible erosion or scarping on slope
2. Visible accretion of mudflat/ salt marsh	2. Visible depressions or ruts on top <u>No</u>	2. Visible seepage or saturated soil on slope
3. Visible erosion of mudflat/ salt marsh	3. Visible cracking <u>Yes</u>	3. Ponded water in ditch
4. Active salt marsh plain scarp erosion	4. Displacement or gaps in revetment/rock	4. Visible soil or sand boils
5. Channel down-cutting or widening	5. Animal burrows	5. Animal burrows
6. Channel filling or narrowing	6. Abrupt change in vegetation type	6. Abrupt change in vegetation type
7. Water Control Structure (see next page)	7. Water Control Structure (see next page)	7. Water Control Structure (see next page)
8. Other:	8. Other:	8. Other:
Remarks:	Remarks:	Remarks:

TYPICAL SHORELINE SECTION VIEW – Show location of indicators above and dimension below

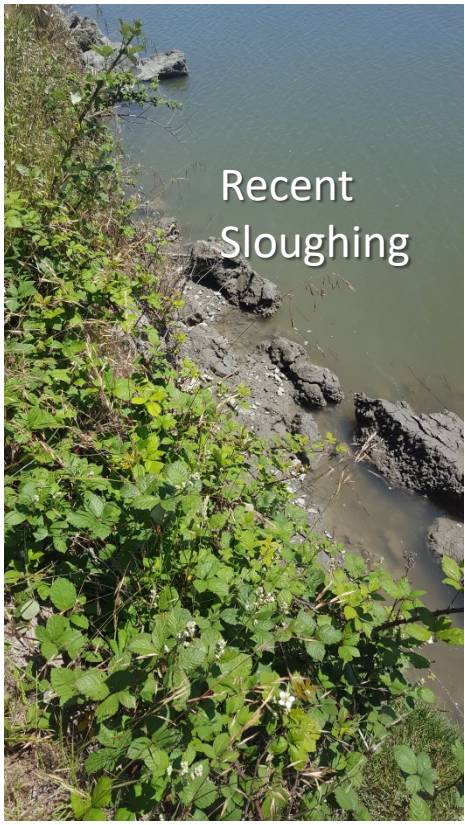
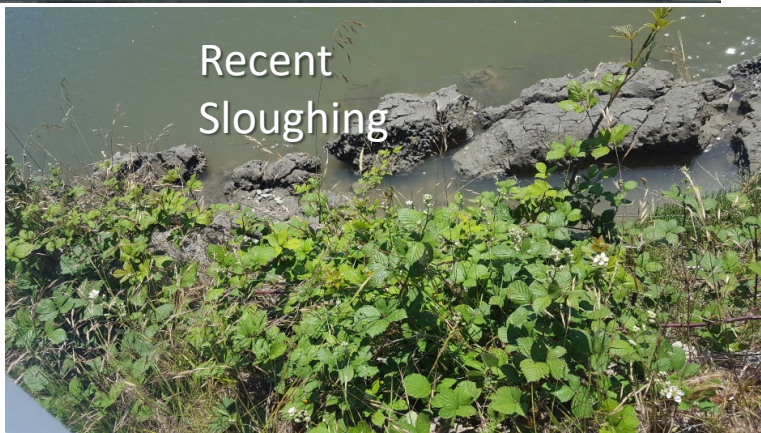


TYPICAL SHORELINE PLAN VIEW – Show location of indicators above and dimension below



Date/Time: 5/25/2020 2:31
Observer(s): pratt
Approx. Tide Elev. at North Spit: _____
Weather Conditions: Sunny / clear wind

Shoreline Location: Airport Levee ③
Shoreline Alignment Station (if applicable): _____
GPS Point Take - Yes or No _____
Photo(s) Taken - Yes or No _____



OBSERVATION LOG INDICATORS OF SHORELINE CHANGE

Purpose: The purpose of this log is to document indicators of change during shoreline observations. Indicators of change are physical attributes that suggest a disturbance or variation compared to either original design or recent prior conditions.

Date/Time: 5/25/2020 2:38

Shoreline Location: Airport Levee ④ @ rrap street (west)

Observer(s): Brett

Shoreline Alignment Station (if applicable): _____

Approx. Tide Elev. at North Spit: _____

GPS Point Take - Yes or No

Weather Conditions: Sunny, wind, clear

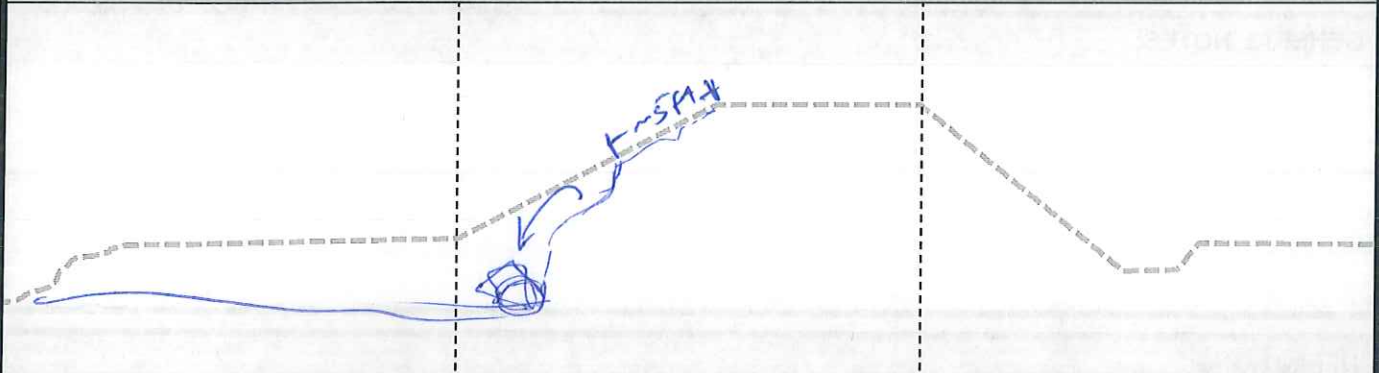
Photo(s) Taken - Yes or No

SHORELINE INDICATORS OF CHANGE – Circle all that apply and depict on graphic below

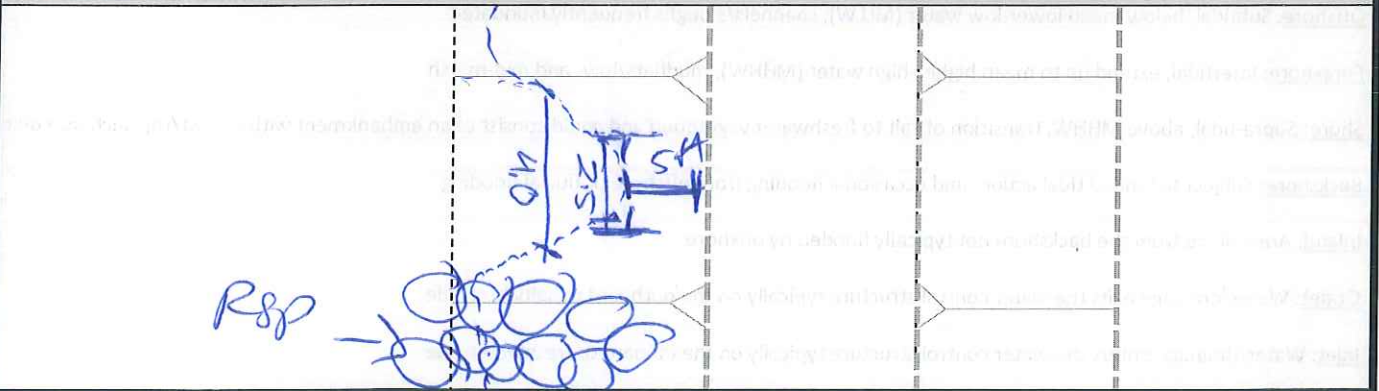
SHORELINE TYPE – Railroad Prism or Levee/Dike or Embankment or Other _____

<u>Offshore & Foreshore</u>	<u>Shore</u>	<u>Backshore & Inland</u>
1. Abrupt change in sediment grain size	1. Visible erosion or scarping on slope	1. Visible erosion or scarping on slope
2. Visible accretion of mudflat/ salt marsh	2. Visible depressions or ruts on top	2. Visible seepage or saturated soil on slope
3. Visible erosion of mudflat/ salt marsh	3. Visible cracking	3. Ponded water in ditch
4. Active salt marsh plain scarp erosion	4. Displacement or gaps in revetment/rock	4. Visible soil or sand boils
5. Channel down-cutting or widening	5. Animal burrows	5. Animal burrows
6. Channel filling or narrowing	6. Abrupt change in vegetation type	6. Abrupt change in vegetation type
7. Water Control Structure (see next page)	7. Water Control Structure (see next page)	7. Water Control Structure (see next page)
8. Other:	8. Other:	8. Other:
Remarks: <u>RSP ⇒ vegetated</u> <u>No Marsh</u>	Remarks:	Remarks:

TYPICAL SHORELINE SECTION VIEW – Show location of indicators above and dimension below



TYPICAL SHORELINE PLAN VIEW – Show location of indicators above and dimension below



Date/Time: 5/25/2020 2:30
Observer(s): Brett
Approx. Tide Elev. at North Spit: _____
Weather Conditions: Sunny, Wind, Clear

Shoreline Location: Airport Levee ④ @ riprap start (west)
Shoreline Alignment Station (if applicable): _____
GPS Point Take - Yes or No _____
Photo(s) Taken - Yes or No _____

