STX EE WATERSHEDS **RETROFITS**

Site Name/ID: TB-R-1 (East End Beach Parking) **Watershed:** Teague

Date: 1/24/2011 **Assessed by:** RAC ALS

EXISTING SITE/STORMWATER MANAGEMENT

Site Contact Info: EFMP Paige Rothenberger

Land Use: ☒ Public ☐ Private ☐ Unknown:

☐ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☐ Golf Course ☒ Park ☐ Agricultural ☐ Road
☐ Commercial/Industrial ☐ Resort ☐ Marina ☐ Other: _____

Is the site a hotspot? ☐ Yes ☒ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☒ Sediment ☐ Nutrients/organics ☐ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☐ Yes ☒ No ☐ Unknown:

Soils: ☒ Unknown ☐ poor infiltration ☐ good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:
Informal Parking w/rusted guardrails - gravel/dirt parking w/erosion gullies leading to beach

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☐ existing BMP upgrade ☒ new BMP

☐ island bio/rain garden ☐ swale ☐ planter ☐ tree pits ☐ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☐ proprietary practice ☐ soil amendments ☐ reforestation ☐ impervious cover removal
☐ rainwater harvesting ☐ disconnection ☒ Other (describe): restrict vehicle access to allow vegetation growth

Area Draining to Retrofit
☐ Hotspot ☐ Individual rooftop
☒ Parking Lot gravel/dirt ☐ other small impervious area
☒ Street ☐ Pervious area
☐ Other (describe):

Drainage Area to retrofit ≈ _____ acres/sq ft
Imperviousness ≈ _____ % N/A
Impervious Area ≈ _____ acres/sq ft

Benefits of Retrofit (primary & secondary): ☐ Storage ☒ Water Quality ☐ Recharge ☐ Gut Protection ☐ Demonstration / Education ☐ Repair ☐ Other: _____

Possible Conflicts due to: ☐ Soils ☐ Access ☐ Adjacent Land Use ☐ Existing Utilities ☐ Contamination ☐ High water table ☐ Limited access to water ☐ Other:

Describe conflicts:

NEXT STEPS

Candidate for pilot project ☒ yep, love it ☐ OK ☐ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☐ Confirm property ownership
☐ Confirm drainage area/impervious cover
☐ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing as-builts/site plans
☐ Obtain detailed topography
☐ Confirm storm drain invert elevations
☐ Other:
☐ Obtain utility mapping
☐ Confirm soil types

☑ SITE AERIAL INCLUDED

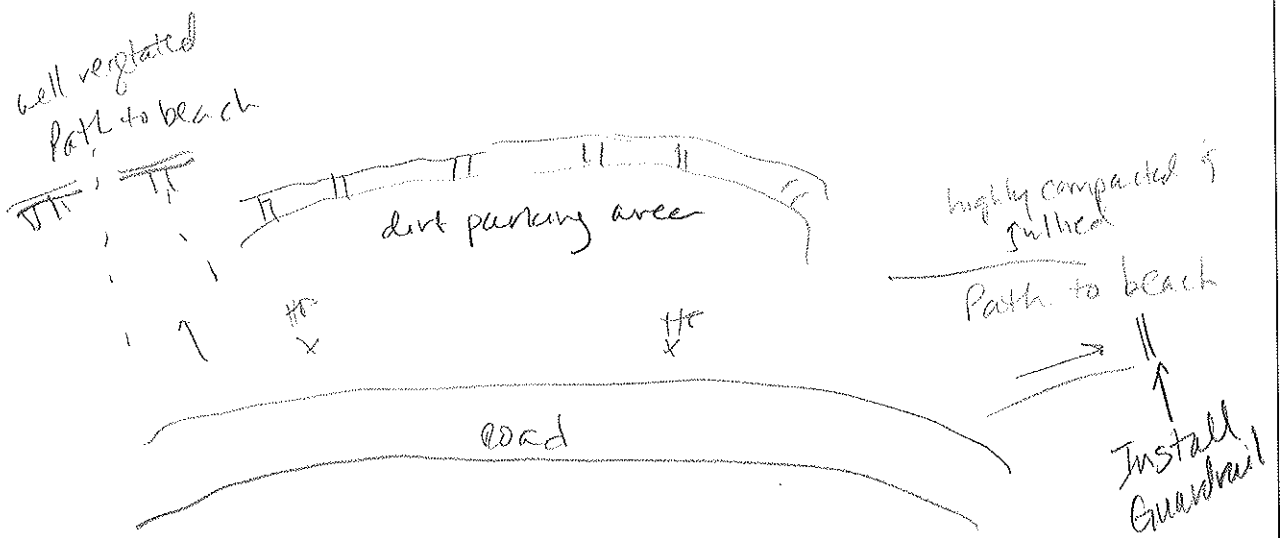
PROPOSED RETROFIT CONCEPT (CONT.)

Narrative Description (Including key elements, aprox. surface area/ depth of treatment, conveyance structures):

insert guardrail at entrance to easterly beach access road to restrict vehicle access so soils can stabilize and vegetation restored

fill in gullies

Sketch and/or Sizing Calcs:



Existing Head Available/Where Measured:

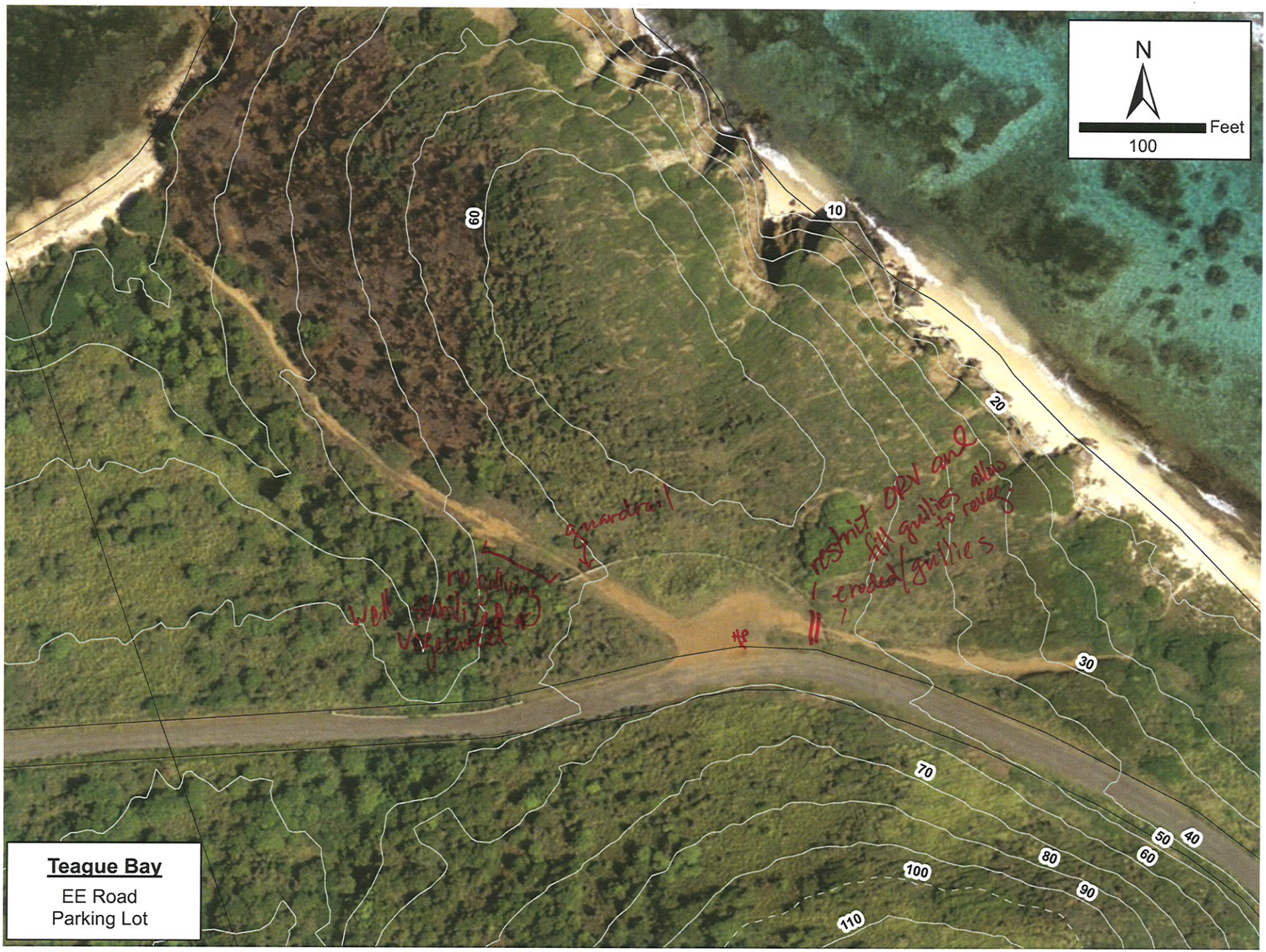
Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

easy to implement quickly

Thoughts on Maintenance Burden: ☒ Low ☐ Medium ☐ High

once implemented

Site ID TB-RL-1



fourth parking

TB-K-1

STX EE WATERSHEDS **RETROFITS**

Site Name/ID: TB-R-2 (St. Croix Yacht Club) **Watershed:** Teague Bay

Date: 4/25/2011 **Assessed by:** RAC, ACS

EXISTING SITE/STORMWATER MANAGEMENT

Site Contact Info: Marina / Yacht Club Owners

Land Use: ☐ Public ☒ Private ☐ Unknown:

☐ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☐ Golf Course ☐ Park ☐ Agricultural ☐ Road
☐ Commercial/Industrial ☐ Resort ☒ Marina ☐ Other: _____

Is the site a hotspot? ☐ Yes ☒ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☒ Sediment ☐ Nutrients/organics ☒ Oil/grease ☒ Trash/Floatables

Existing Stormwater BMP on site? ☐ Yes ☒ No ☐ Unknown: surface drainage only

Soils: ☒ Unknown ☐ poor infiltration ☐ good infiltration fairly compacted in some areas

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

drains from boat storage area overland to gut-like area
gullying, erosion, tire ruts are highly gullied
- some trash & debris in eroded areas surrounding/draining to gut

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☐ existing BMP upgrade ☒ new BMP

☐ island bio/rain garden ☐ swale ☐ planter ☐ tree pits ☐ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☒ constructed wetland ☐ proprietary practice ☐ soil amendments ☐ reforestation ☐ impervious cover removal
☐ rainwater harvesting ☐ disconnection ☒ Other (describe): Stabilize access road/drive w/gravel

Area Draining to Retrofit
☐ Hotspot ☐ Individual rooftop
☒ Parking Lot (gravel/turf) ☐ other small impervious area
☐ Street ☐ Pervious area
☒ Other (describe): Boat Storage Area

Drainage Area to retrofit ≈ _____ acres/sq ft

Imperviousness ≈ _____ %

Impervious Area ≈ _____ acres/sq ft

Benefits of Retrofit (primary & secondary): ☒ Storage ☒ Water Quality ☐ Recharge ☐ Gut Protection ☐ Demonstration / Education ☐ Repair ☒ Other: Sediment Reduction / Toxic Reduction

Possible Conflicts due to: ☐ Soils ☐ Access ☒ Adjacent Land Use ☐ Existing Utilities ☐ Contamination ☐ High water table ☐ Limited access to water ☐ Other:

Describe conflicts:

NEXT STEPS

Candidate for pilot project ☐ yep, love it ☐ OK ☒ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☒ Confirm property ownership
☐ Confirm drainage area/impervious cover
☐ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing as-builts/site plans
☐ Obtain detailed topography
☐ Confirm storm drain invert elevations
☐ Other:
☐ Obtain utility mapping
☐ Confirm soil types

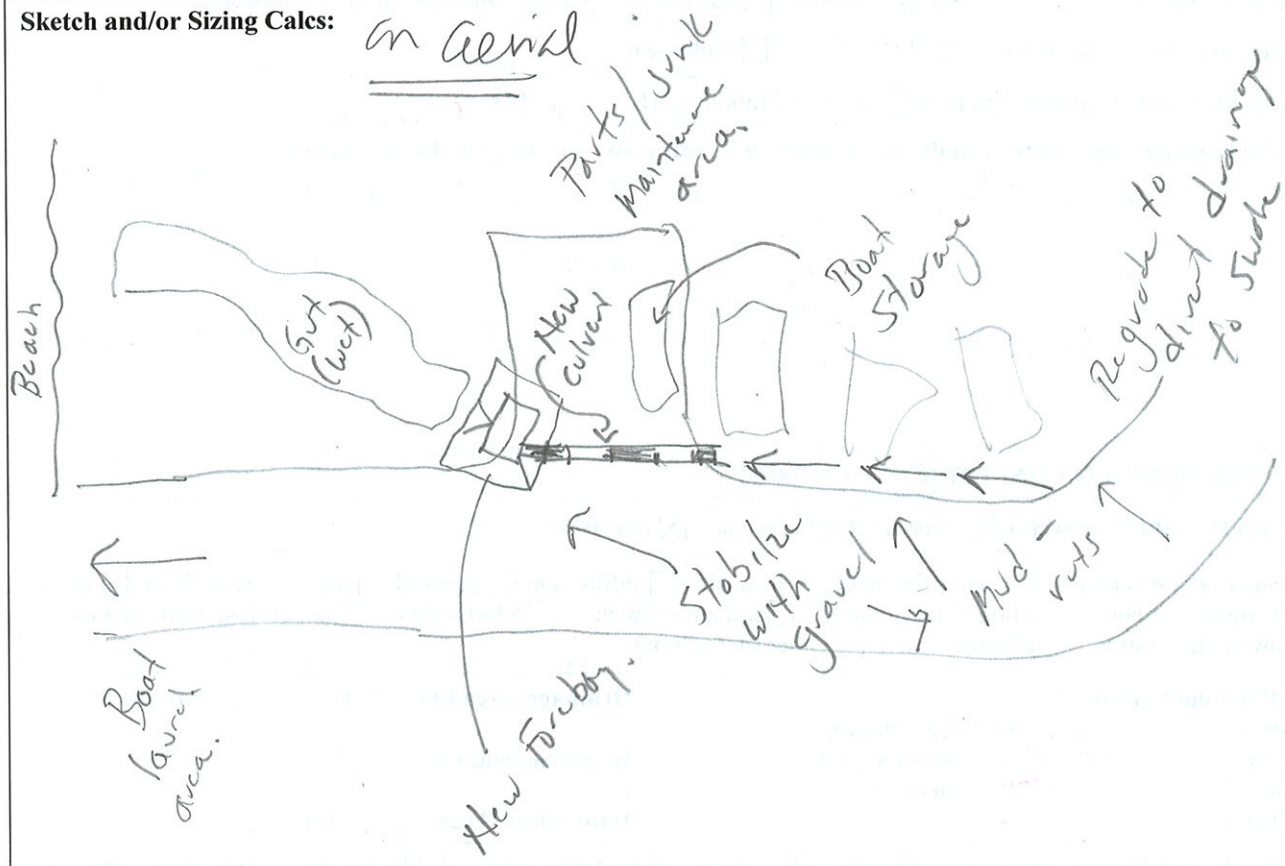
☒ SITE AERIAL INCLUDED

PROPOSED RETROFIT CONCEPT (CONT.)

Narrative Description (Including key elements, aprox. surface area/ depth of treatment, conveyance structures):

restore eroded area/ruts downgradient of boat storage with gravel. Construct ditch to facilitate runoff flow into a constructed wetland/forebay area adjacent to existing gut.

Sketch and/or Sizing Calcs:



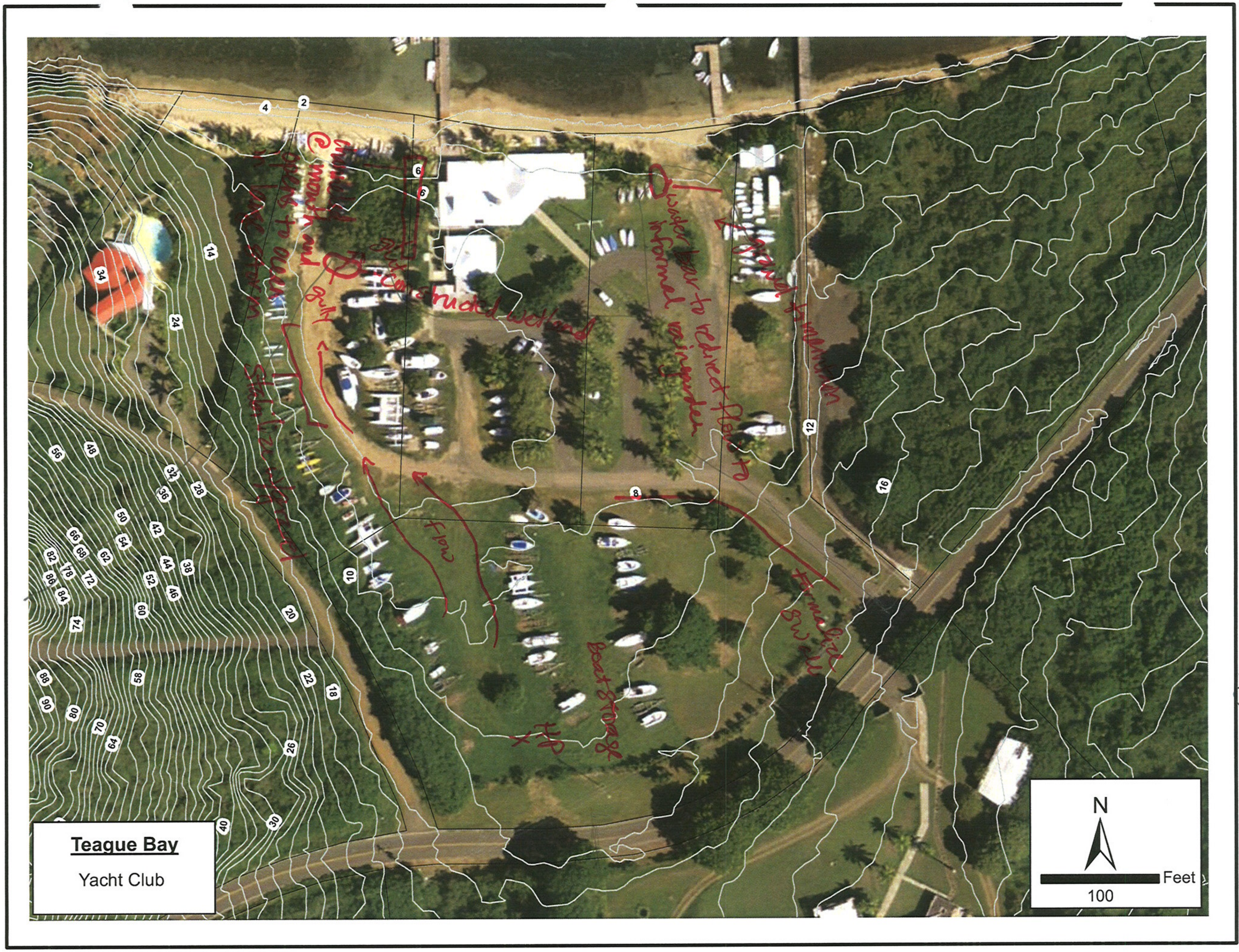
Existing Head Available/Where Measured:

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

Thoughts on Maintenance Burden: ☑ Low ☐ Medium ☐ High

Site ID TB-R-1

TB-R-2



Teague Bay
Yacht Club
N
Feet
100
gravel to maintain
water bar to redirect flow to informal raingarden
Formalize swale
constructed wetland
Boat Storage
HP
X
Flow
channeled @ mouth and opens to ocean in large storm
gully
Stabilize w/ gravel

See also TB-OR-1 & TB-RC-1

STX EE WATERSHEDS **RETROFITS**

Site Name/ID: TB-R-3 **Watershed:** TEAGUE BAY

Date: 1/25/2011 **Assessed by:** RAC, ACS

EXISTING SITE/STORMWATER MANAGEMENT

Site Contact Info: MIKE HANNE, REEF GOLF COURSE 340-642-9377
mikehreefgm@me.com

Land Use: ☐ Public ☒ Private ☐ Unknown:

☐ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☒ Golf Course ☐ Park ☐ Agricultural ☐ Road
☐ Commercial/Industrial ☒ Resort ☐ Marina ☐ Other: _____

Is the site a hotspot? ☐ Yes ☒ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☒ Sediment ☒ Nutrients/organics ☐ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☐ Yes ☒ No ☐ Unknown:

Soils: ☐ Unknown ☒ poor infiltration ☐ good infiltration High gw.

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

See culvert form & GW for—

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☐ existing BMP upgrade ☒ new BMP

☐ island bio/rain garden ☐ swale ☐ planter ☐ tree pits ☐ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☒ constructed wetland ☐ proprietary practice ☐ soil amendments ☐ reforestation ☐ impervious cover removal
☐ rainwater harvesting ☐ disconnection ☐ Other (describe):

Area Draining to Retrofit
☐ Hotspot ☐ Individual rooftop
☐ Parking Lot ☐ other small impervious area
☐ Street ☒ Pervious area
☒ Other (describe): Large DA

Drainage Area to retrofit ≈ _____ acres/sq ft
Imperviousness ≈ _____ % GIS
Impervious Area ≈ _____ acres/sq ft

Benefits of Retrofit (primary & secondary): ☐ Storage ☒ Water Quality ☐ Recharge ☐ Gut Protection ☒ Demonstration / Education ☐ Repair ☐ Other:

Possible Conflicts due to: ☐ Soils ☐ Access ☐ Adjacent Land Use ☐ Existing Utilities ☐ Contamination ☐ High water table ☐ Limited access to water ☒ Other:

Describe conflicts: Utilities and exist Hot. Paving (already a wetland/waterway)

NEXT STEPS

Candidate for pilot project ☐ yep, love it ☐ OK ☒ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☐ Confirm property ownership
☐ Confirm drainage area/impervious cover (GIS)
☒ Confirm volume computations
☐ Complete concept sketch
☒ Obtain existing as-builts/site plans
☐ Obtain detailed topography
☐ Confirm storm drain invert elevations
☐ Other:
☒ Obtain utility mapping
☐ Confirm soil types

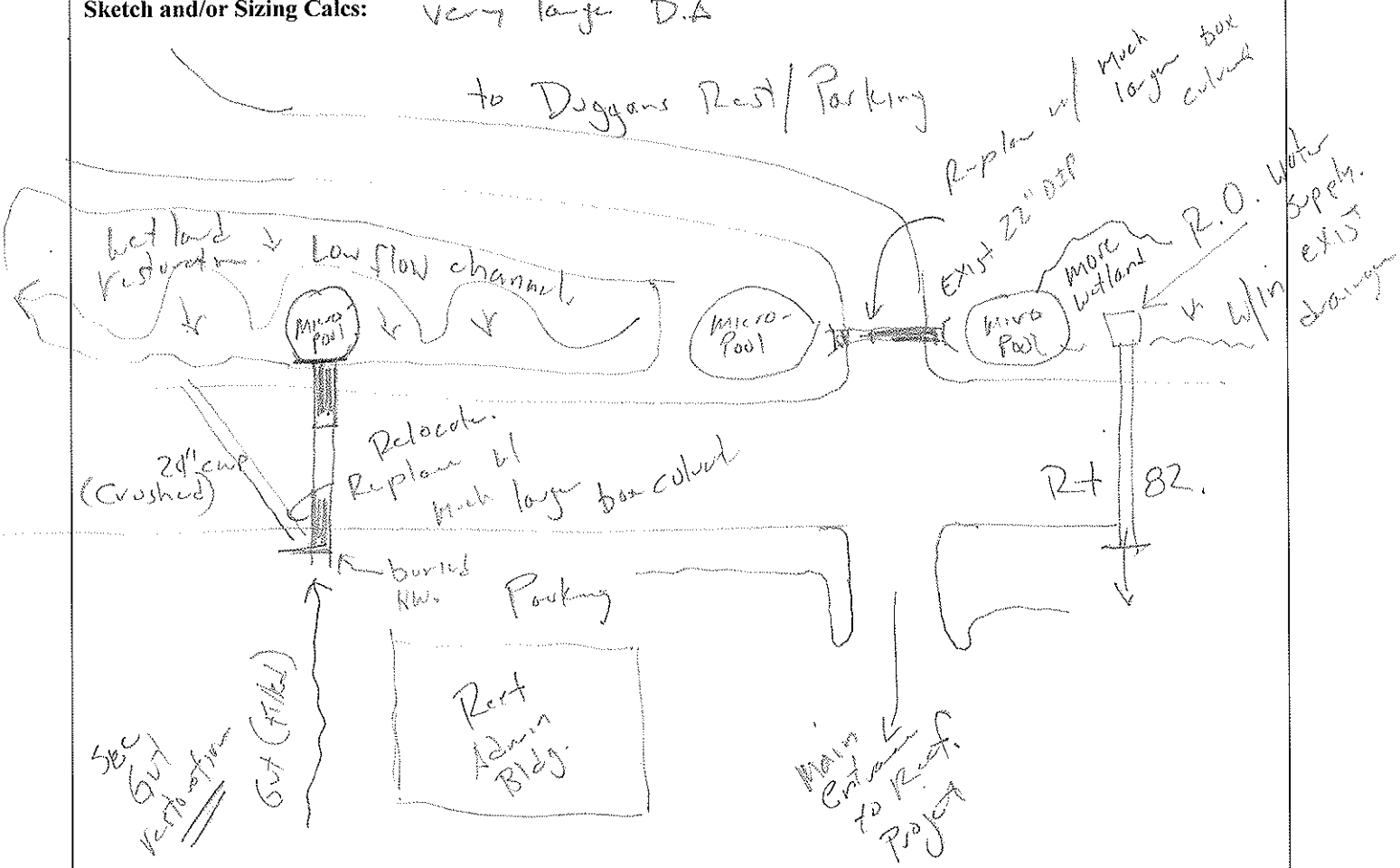
☐ SITE AERIAL INCLUDED

PROPOSED RETROFIT CONCEPT (CONT.)

Narrative Description (Including key elements, aprox. surface area/ depth of treatment, conveyance structures):

- Replace culverts.
- Micropools
- low flow channels
- wetland marsh.

Sketch and/or Sizing Calcs: very large D.A



Existing Head Available/Where Measured:

Flat, but ok for Surface Const wetlands

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

Conveyance Issue.

Thoughts on Maintenance Burden: ☐ Low ☒ Medium ☐ High

STX EE WATERSHEDS **GUT RESTORATION**

Site Name/ID: TB-GR-1 / GUT @ REEF GOLF **Watershed:** Tague Bay
Date: 1/25/2011 **Assessed by:** KAE, AIS

EXISTING CONDITION

See also TB-RC-1 / TB-RC-2 / TB-R-3

LAND OWNER CONTACT INFO: Mike Hamm, Reef Golf + Skeet

LAND OWNERSHIP: ☒ Private ☐ Public ☐ Unknown **LAND COVER:** ☐ Forest ☒ Field/Ag ☒ Developed:

LIVESTOCK ON SITE: ☐ Yes ☐ No ☐ Unknown #:_____ **LIVESTOCK HAVE CURRENT GUT ACCESS:** ☐ Yes ☐ No

DRAINS TO DOWNSTREAM IMPOUNDMENT OR POND: ☐ Yes ☐ No ☐ Unknown

EROSION ☐ Channelized

TYPE:
- ☒ Downcutting
- ☐ Widening
- ☐ Headcutting
- ☐ Bed scour
- ☒ Bank erosion

BANK OF CONCERN: ☐ LT ☒ RT ☐ Both *(looking downstream)*

LOCATION: ☐ Meander bend ☐ Straight section ☒ Steep slope/valley wall ☐ Other:

DIMENSIONS:

Length *(if no GPS)*	LT_____ft	and/or RT_____ft	Bottom width 3-4 ft
Bank Ht	LT_____ft	and/or RT_____ft	Top width 8-12 ft
Bank Angle	LT_____°	and/or RT_____°	Wetted Width _____ft

THREAT TO PROPERTY/INFRASTRUCTURE: ☐ No ☒ Yes (Describe): golf course + downstream culverts

RIPARIAN AREA

EXISTING RIPARIAN WIDTH (NO STRUCTURES): ☒ ≤25 ft ☐ 25 - 50 ft ☐ 50-75ft ☐ 75-100ft ☐ >100ft

DOMINANT COVER

	Paved	Bare ground	Turf/lawn	Tall grass	Shrub/scrub	Trees	Other:
LT	☐	☐	☐	☐	☒	☐	☐:
RT	☐	☐	☒	☐	☐	☐	☐:

DESCRIBE: golf to RT Grass Canopy to LT (Acacia, Tamarisk, Cactus)

WETLANDS PRESENT: ☐ Yes ☒ No ☐ Unknown

DESCRIBE EXISTING PROBLEM Right bank failure & downcutting. Steep slope & receives enough water and rotten rock chokes down stream culverts

EROSION SEVERITY	Active downcutting; tall banks on both sides of the stream eroding at a fast rate; erosion contributing significant amount of sediment to stream; obvious threat to property or infrastructure.	Pat downcutting evident, active stream widening, banks actively eroding at a moderate rate; no threat to property or infrastructure		Grade and width stable; isolated areas of bank failure/erosion; likely caused by a pipe outfall, local scour, impaired riparian vegetation or adjacent use.
	5	(4)	3	2 1
ACCESS:	**Good access:** Open area in public ownership, sufficient room to stockpile materials, easy stream channel access for heavy equipment using existing roads or trails.	**Fair access:** Forested or developed area adjacent to stream. Access requires tree removal or impact to landscaped areas. Stockpile areas small or distant from stream.		**Difficult access.** Must cross wetland, steep slope or other sensitive areas to access stream. Minimal stockpile areas available and/or located a great distance from stream section. Specialized heavy equipment required.
	(5)	4	3	2 1

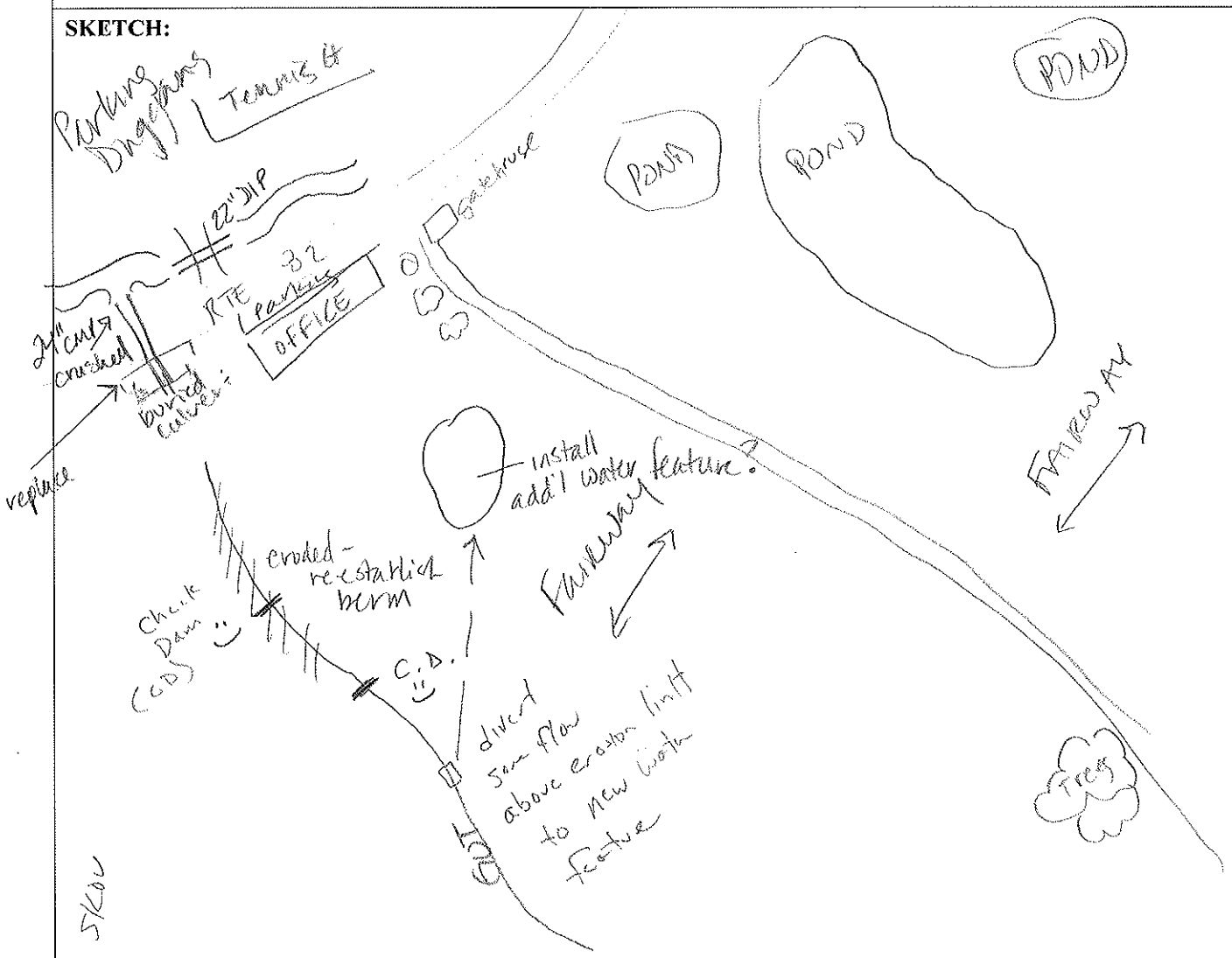
NEXT STEPS:

☒ SITE AERIAL INCLUDED

RESTORATION CONCEPT:

NARRATIVE Install check dams and reestablish berm on RT bank after laying banks back. Install water feature to capture potential overflow.

SKETCH:



INITIAL FEASIBILITY AND NOTES:

Site ID TB-FIR-1

STX EE WATERSHEDS — **ROADS & CULVERTS**

Horsley Witten Group

Site/Road Name/ID: TB-RC-1 Dugout Entrance **Watershed:** Teague Bay

Date: 1/25/2011 **Assessed by:** RAC, ACS

EXISTING CONDITION

ALSO REFER TO TB-GR-1 / TB-RC-2

☒ CULVERTS

SHAPE:
- ☐ Arch ☐ Bottomless
- ☐ Box ☐ Elliptical
- ☑ Circular
- ☐ Other:

 # BARRELS:
- ☒ Single
- ☐ Double
- ☐ Triple
- ☐ Other:

MATERIAL:
- ☐ Concrete
- ☒ Metal
- ☐ Other:

ALIGNMENT:
- ☒ Flow-aligned
- ☐ Not flow-aligned
- ☐ Do not know

DIMENSIONS: *(if variable, sketch)*

Barrel diameter: 22" DIP (ft)

Headwall Height: 3.5' (ft)

Culvert length: 26 ft (ft)

Width: _____ (ft)

Roadway elevation: 3.5 (ft)

CONDITION: *(Evidence of...)* ☐ In good condition

- ☐ Cracking/chipping/corrosion
- ☒ Downstream scour hole
- ☒ Sediment deposition
- ☐ Upstream erosion
- ☒ Blockage Partial
- ☒ Failing embankment
- ☒ Threatened infrastructure
- ☒ Other *(describe)*: failing headwall

CULVERT SLOPE:
- ☒ Flat
- ☐ Slight (2 – 5%)
- ☐ Steeper

IS IT FLOWING?
- ☐ No ☒ Yes

BLOCKAGE SEVERITY: ☐ none ☐ minor ☒ partial ☐ significant ☐ complete

Potential barrier to aquatic species? ☒ No ☐ Yes ☐ Unknown

Is it acting as grade control? ☒ No ☐ Yes ☐ Unknown

☐ ROAD SEGMENTS

SURFACE:
- ☐ Concrete
- ☒ Asphalt
- ☐ Unpaved: >gravel
- ☐ Unpaved: >dirt
- ☐ Other

STEEPNESS:
- ☒ Pretty flat
- ☐ Slight (around 5:1, 20%)
- ☐ Steep (more like 2:1, 50%)
- ☐ Big time steep (≥ 75%)

ACCESS/USE:
- ☐ Private
- ☐ Public
- ☒ Unknown

Total ROW Width: ~ (ft)

Drive lane: _____ (ft)

Shoulder: _____ (ft)

Length of interest: _____

Surface: ☒ good condition ☐ minor maintenance needed ☐ large gullies and potholes

Drain Inlets/Catch basins: ☒ None ☐ clean ☐ blocked ☐ other:

Waterbars/dips/cross drains: ☒ None ☐ functioning ☐ need maintenance ☐ other:

Ditches: ☒ none ☐ shallow ☐ well-defined ☐ stable ☐ eroded ☐ excess vegetation ☐ other:

Discharge locations: ☒ Stable ☐ some erosion ☐ eroded ☐ other:

SEVERITY OF PROBLEM: ☒ High ☐ Med ☐ Low (Explain): culvert Culvert needs to be replaced causing problems upstream & downstream

POTENTIAL FOR SEDIMENT LOADING TO RESOURCE AREA: ☒ HIGH ☐ MED ☐ LOW

DESCRIPTION OF EXISTING CONDITIONS: occluded culvert.

NEXT STEPS

Potential Repair Candidate? ☒ YES ☐ NO ☐ OTHER:

CONTACT ☐ DPW; ☒ LANDOWNER ☐ HOA; ☐ OTHER:

Site Name TB-RC-1

☐ SITE AERIAL INCLUDED

REPAIR/IMPROVEMENT CONCEPT

Narrative:

Sketch:

See Retrofit Sketch.

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

Thoughts on Maintenance Burden: ☐ Low ☐ Medium ☐ High

Site Name TB-RC-1

STX EE WATERSHEDS — **ROADS & CULVERTS**

Site/Road Name/ID: TB-RC-2 culvert @ Reef Rd bisecting Rte 82 to Duggans **Watershed:** League Bay

Date: _____ **Assessed by:** RAC, ACS

EXISTING CONDITION

ALSO REFER TO TB-RC-1 & TB-GR-1

☒ CULVERTS

SHAPE:
☐ Arch ☐ Bottomless
☐ Box ☐ Elliptical
☒ Circular
☐ Other:

 # BARRELS:
☒ Single
☐ Double
☐ Triple
☐ Other:

MATERIAL:
☐ Concrete
☒ Metal
☐ Other:

ALIGNMENT:
☒ Flow-aligned
☐ Not flow-aligned
☐ Do not know

DIMENSIONS: (*if variable, sketch*)
Barrel diameter: 24" diameter (ft)
Height: _____ (ft)
Culvert length: _____ (ft)
Width: _____ (ft)
Roadway elevation: _____ (ft)

CONDITION: (*Evidence of...*) ☐ In good condition
☒ Cracking/chipping/corrosion ☐ Downstream scour hole
☒ Sediment deposition ☐ Upstream erosion
☒ Blockage ☐ Failing embankment
☒ Threatened infrastructure ☒ Other (*describe*):
Crushed at downstream end

CULVERT SLOPE:
☒ Flat
☐ Slight (2 – 5%)
☐ Steeper

IS IT FLOWING?
☒ No ☐ Yes

BLOCKAGE SEVERITY: ☐ none ☐ minor ☐ partial ☐ significant ☒ complete

Potential barrier to aquatic species? ☐ No ☒ Yes ☐ Unknown

Is it acting as grade control? ☒ No ☐ Yes ☐ Unknown

☐ ROAD SEGMENTS

SURFACE:
☐ Concrete
☐ Asphalt
☐ Unpaved: >gravel
☐ Unpaved: >dirt
☐ Other

STEEPNESS:
☐ Pretty flat
☐ Slight (around 5:1, 20%)
☐ Steep (more like 2:1, 50%)
☐ Big time steep (≥ 75%)

ACCESS/USE:
☐ Private
☐ Public
☐ Unknown

Total ROW Width: _____ (ft)
Drive lane: _____ (ft)
Shoulder: _____ (ft)
Length of interest: _____

Surface: ☐ good condition ☐ minor maintenance needed ☐ large gullies and potholes
Drain Inlets/Catch basins: ☐ None ☐ clean ☐ blocked ☐ other:
Waterbars/dips/cross drains: ☐ None ☐ functioning ☐ need maintenance ☐ other:
Ditches: ☐ none ☐ shallow ☐ well-defined ☐ stable ☐ eroded ☐ excess vegetation ☐ other:
Discharge locations: ☐ Stable ☐ some erosion ☐ eroded ☐ other:

SEVERITY OF PROBLEM: ☐ High ☐ Med ☐ Low (Explain):

POTENTIAL FOR SEDIMENT LOADING TO RESOURCE AREA: ☐ HIGH ☐ MED ☐ LOW

DESCRIPTION OF EXISTING CONDITIONS: upstream gut eroding and have completely occluded culvert inlet & buried headwall so runoff sheet flows over road and deposits sediment and rock fragments. Outlet completely rusted and crushed.

NEXT STEPS

Potential Repair Candidate? ☒ YES ☐ NO ☐ OTHER:

CONTACT ☐ DPW; ☐ LANDOWNER ☐ HOA; ☒ OTHER: Mike Hanna, Reef Rd

Carlos Skov.

Site Name _____.

☒ SITE AERIAL INCLUDED

REPAIR/IMPROVEMENT CONCEPT

Narrative: Restore upstream gut (see TB-GR-1) to alleviate erosion and downstream sedimentation to receiving culvert. Replace damaged culvert/headwall and remove accumulated sediment.

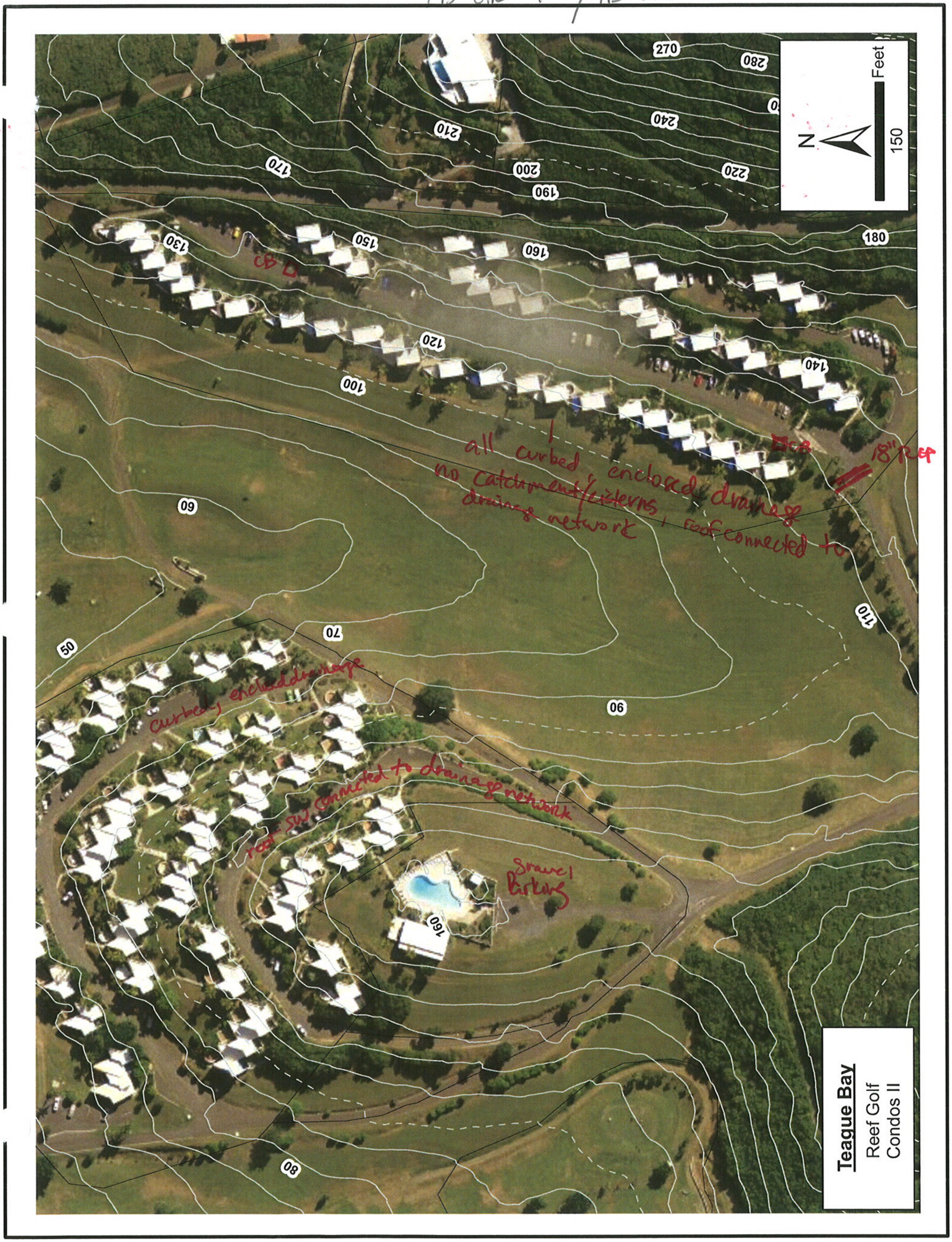
Sketch: See aerials and Sketch on TB-GR-1

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

Thoughts on Maintenance Burden: ☐ Low ☐ Medium ☐ High

Site Name TB-CC-2

TB-GR-1 / TB-RC-1



Teague Bay
Reef Golf
Condos II
Feet
150
N
all curbed enclosed drainage
no catchment/cisterns, roof connected to drainage network
CB
18" RCP
curbed, enclosed drainage
roof SW connected to drainage network
Gravel Parking

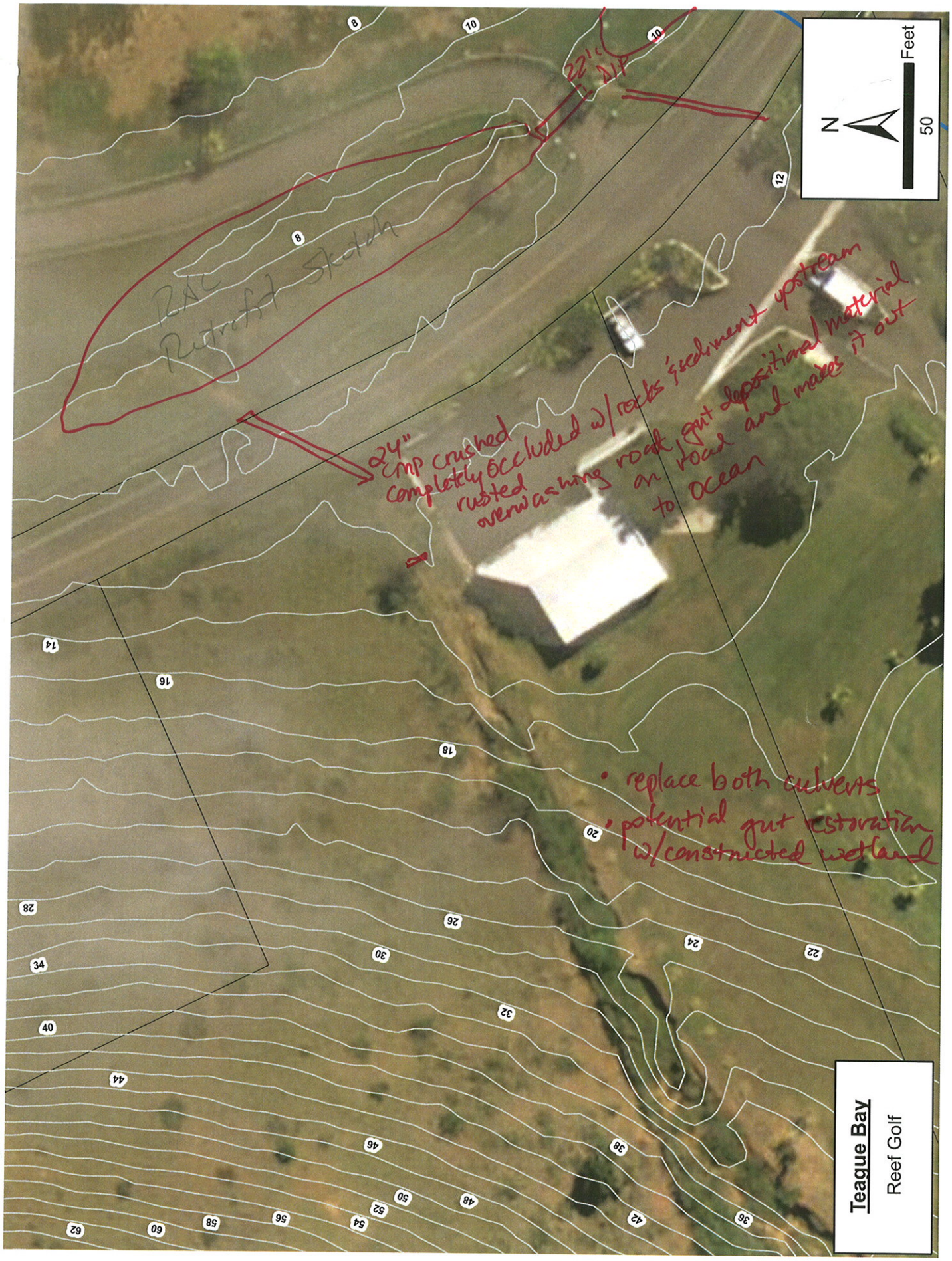
Ponds formerly had cmc/plastic liners ~~&~~ installed in '70s
└ seed into each other


40
50
60
70
80
90
100
110
120
130
140
150
160
pcb
pcb
underbar
Teague Bay
Reef Golf
Condos
N
Feet
100

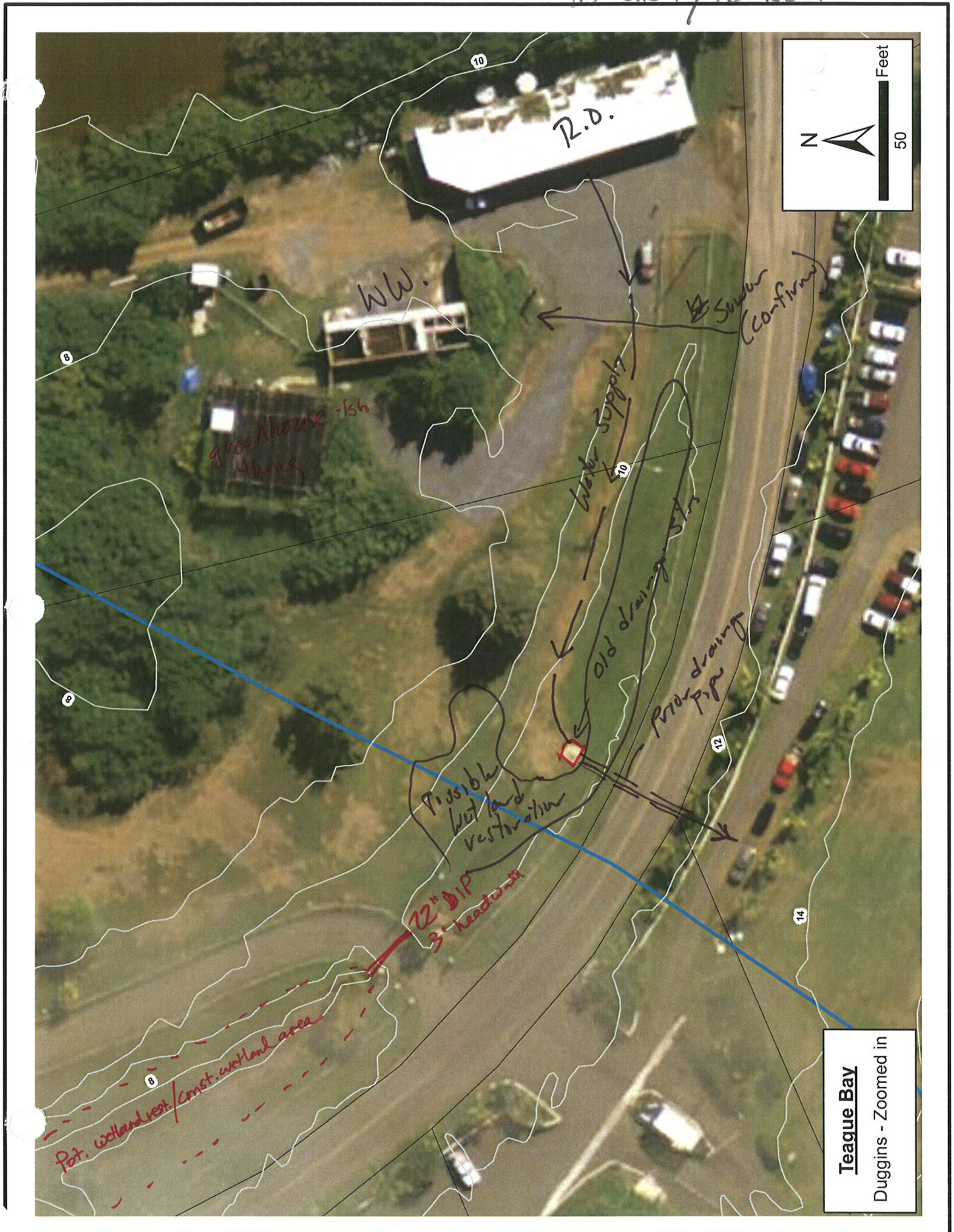
TB-GR-1 / TB-RC-1

TB-GR-1 / TB-RC-1/TB-RC-2

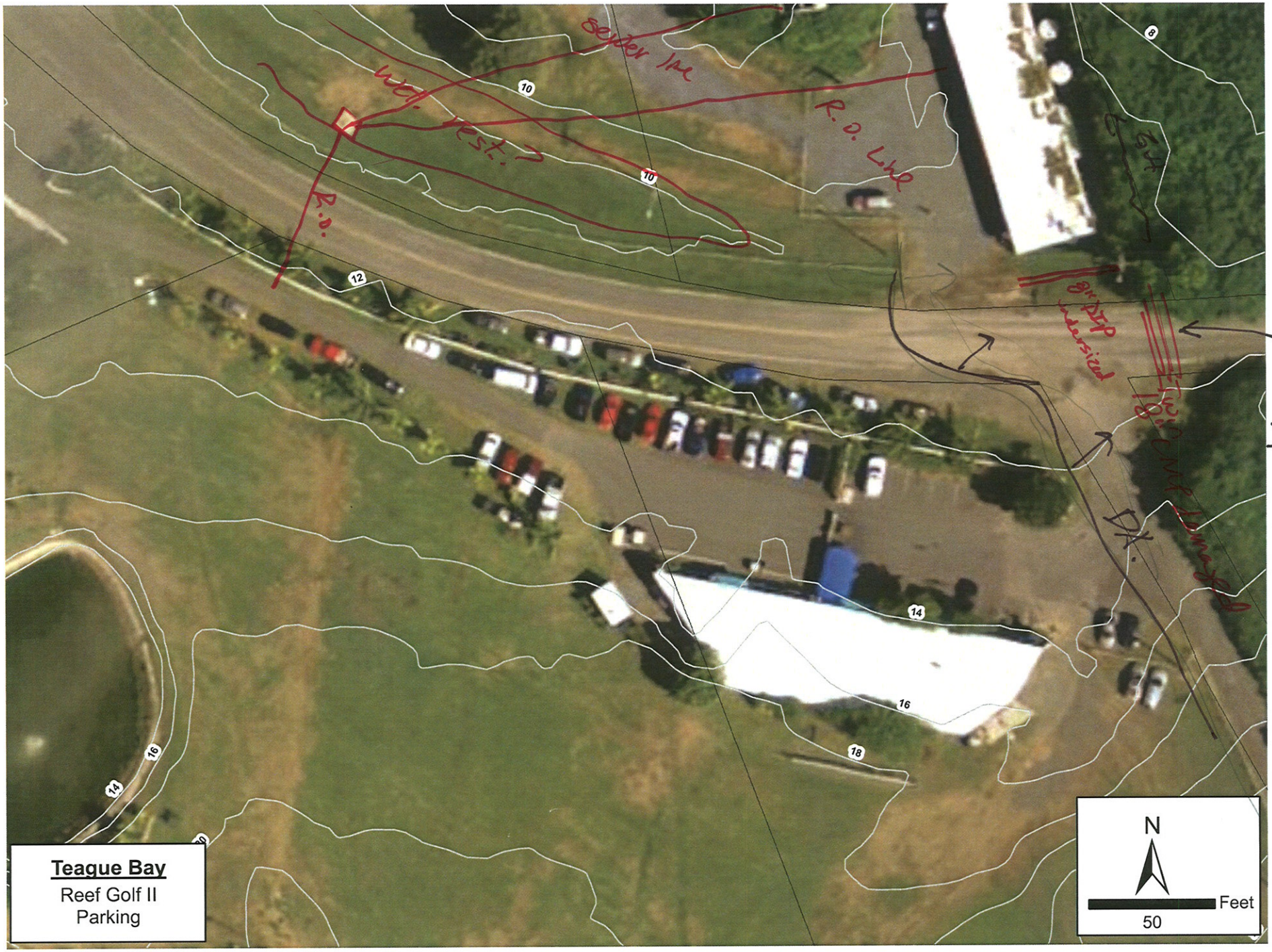
TB-GR-1 / TB-RC-1


Feet
50
N
22" CMP
RAC Retrofit Sketch
24" CMP crushed completely occluded w/rocks & sediment upstream rusted overwashing road, gut depositional material on road and makes it out to Ocean
• replace both culverts
• potential gut restoration w/constructed wetland
Teague Bay
Reef Golf

TB-GR-1 / TB-RC-1



Teague Bay
Duggins - Zoomed in
N
Feet
50
10
8
12
14
R.D.
W.W.
Sewer (confirm)
Water supply
greenhouse-ish thing
old drainage sites
Prior drainage pipe
Possible wetland restoration
22" DIP 3' headwall
Pot. wetland rest./const. wetland area



TB-612-1 / TB-612-1

STX EE WATERSHEDS **ROADS & CULVERTS**

Site/Road Name/ID: TB-RC-3 Ridge Road **Watershed:** League Bay

Date: 1/25/2011 **Assessed by:** RAC, ACS

EXISTING CONDITION

☐ CULVERTS

SHAPE:
☐ Arch ☐ Bottomless
☐ Box ☐ Elliptical
☐ Circular
☐ Other:

 # BARRELS:
☐ Single
☐ Double
☐ Triple
☐ Other:

MATERIAL:
☐ Concrete
☐ Metal
☐ Other:

ALIGNMENT:
☐ Flow-aligned
☐ Not flow-aligned
☐ Do not know

DIMENSIONS: (*if variable, sketch*)
Barrel diameter: _____(ft)
Height: _____(ft)
Culvert length: _____(ft)
Width: _____(ft)
Roadway elevation: _____(ft)

CONDITION: (*Evidence of...*) ☐ In good condition
☐ Cracking/chipping/corrosion ☐ Downstream scour hole
☐ Sediment deposition ☐ Upstream erosion
☐ Blockage ☐ Failing embankment
☐ Threatened infrastructure ☐ Other (*describe*):

CULVERT SLOPE:
☐ Flat
☐ Slight (2 – 5%)
☐ Steeper

IS IT FLOWING?
☐ No ☐ Yes

BLOCKAGE SEVERITY: ☐ none ☐ minor ☐ partial ☐ significant ☐ complete

Potential barrier to aquatic species? ☐ No ☐ Yes ☐ Unknown

Is it acting as grade control? ☐ No ☐ Yes ☐ Unknown

☒ ROAD SEGMENTS

SURFACE:
☐ Concrete
☐ Asphalt
☐ Unpaved: >gravel
☒ Unpaved: >dirt
☐ Other

STEEPNESS:
☐ Pretty flat
☐ Slight (around 5:1, 20%)
☐ Steep (more like 2:1, 50%)
☐ Big time steep (≥ 75%)

ACCESS/USE:
☐ Private
☒ Public
☐ Unknown

Total ROW Width: 20 (ft)
Drive lane: Single track (ft)
Shoulder: _____(ft)
Length of interest: _____

Surface: ☐ good condition ☐ minor maintenance needed ☒ large gullies and potholes
Drain Inlets/Catch basins: ☒ None ☐ clean ☐ blocked ☐ other:
Waterbars/dips/cross drains: ☒ None ☐ functioning ☐ need maintenance ☐ other:
Ditches: ☒ none ☐ shallow ☐ well-defined ☐ stable ☐ eroded ☐ excess vegetation ☐ other:
Discharge locations: ☐ Stable ☐ some erosion ☐ eroded ☐ other:

SEVERITY OF PROBLEM: ☐ High ☒ Med ☐ Low (Explain):
Mid. Significant sediment load.

POTENTIAL FOR SEDIMENT LOADING TO RESOURCE AREA: ☒ HIGH ☐ MED ☐ LOW

DESCRIPTION OF EXISTING CONDITIONS: large gullies and erosion on first segment of Ridge Road off Rte 82 – sediment washing down towards main road.

NEXT STEPS

Potential Repair Candidate? ☒ YES ☐ NO ☐ OTHER:

CONTACT ☐ DPW; ☐ LANDOWNER ☐ HOA; ☐ OTHER:

Site Name TB RC-3

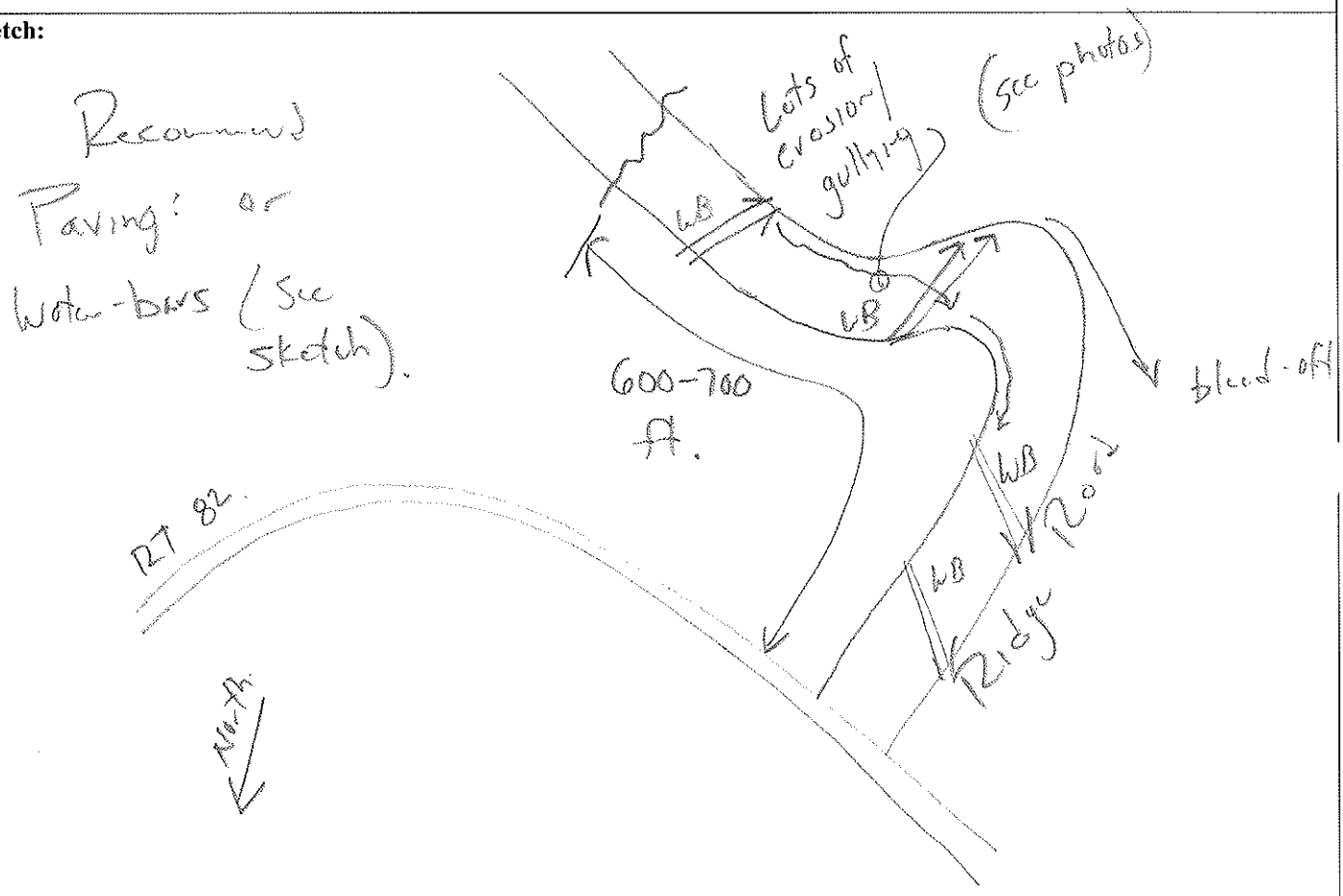
☐ SITE AERIAL INCLUDED

REPAIR/IMPROVEMENT CONCEPT

Narrative:

Candidate for paving - water bars as an option

Sketch:



Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

Thoughts on Maintenance Burden: ☐ Low ☐ Medium ☐ High

Site Name_____

STX EE WATERSHEDS — **ROADS & CULVERTS**

Site/Road Name/ID: TB-RC-4 / Goat Hill Rd / TNC Road **Watershed:** Teague Bay

Date: 1/26/2011 **Assessed by:** RAC, ACS

EXISTING CONDITION

☐ CULVERTS

SHAPE:
☐ Arch ☐ Bottomless
☐ Box ☐ Elliptical
☐ Circular
☐ Other:

 # BARRELS:
☐ Single
☐ Double
☐ Triple
☐ Other:

MATERIAL:
☐ Concrete
☐ Metal
☐ Other:

ALIGNMENT:
☐ Flow-aligned
☐ Not flow-aligned
☐ Do not know

DIMENSIONS: (*if variable, sketch*)
Barrel diameter: _____(ft)
Height: _____(ft)
Culvert length: _____(ft)
Width: _____(ft)
Roadway elevation: _____(ft)

CONDITION: (*Evidence of...*) ☐ In good condition
☐ Cracking/chipping/corrosion ☐ Downstream scour hole
☐ Sediment deposition ☐ Upstream erosion
☐ Blockage ☐ Failing embankment
☐ Threatened infrastructure ☐ Other (*describe*):

CULVERT SLOPE:
☐ Flat
☐ Slight (2 – 5%)
☐ Steeper

IS IT FLOWING?
☐ No ☐ Yes

BLOCKAGE SEVERITY: ☐ none ☐ minor ☐ partial ☐ significant ☐ complete

Potential barrier to aquatic species? ☐ No ☐ Yes ☐ Unknown

Is it acting as grade control? ☐ No ☐ Yes ☐ Unknown

☑ ROAD SEGMENTS

SURFACE:
☐ Concrete
☐ Asphalt
☐ Unpaved: >gravel
☒ Unpaved: >dirt
☐ Other

STEEPNESS:
☐ Pretty flat
☐ Slight (around 5:1, 20%)
☐ Steep (more like 2:1, 50%)
☐ Big time steep (≥ 75%)

ACCESS/USE:
☐ Private
☐ Public
☐ Unknown
TNC owned & Dept. Parks/Rec.

Total ROW Width: _____(ft)
Drive lane: _____(ft)
Shoulder: _____(ft)
Length of interest: _____

Surface: ☐ good condition ☒ minor maintenance needed ☐ large gullies and potholes
Drain Inlets/Catch basins: ☒ None ☐ clean ☐ blocked ☐ other:
Waterbars/dips/cross drains: ☒ None ☐ functioning ☐ need maintenance ☐ other:
Ditches: ☒ none ☐ shallow ☐ well-defined ☐ stable ☐ eroded ☐ excess vegetation ☐ other:
Discharge locations: ☐ Stable ☐ some erosion ☐ eroded ☐ other:

SEVERITY OF PROBLEM: ☐ High ☒ Med ☐ Low (Explain):

POTENTIAL FOR SEDIMENT LOADING TO RESOURCE AREA: ☐ HIGH ☒ MED ☐ LOW

DESCRIPTION OF EXISTING CONDITIONS: water sheet flows over road surface - some water is diverted down to Base Array Telescope, other water flows down into Rte 82 along roadside then crosses via concrete swale to Cramers Park. Road maintenance 3 months ago resulted in widening of Road & creation of dirt/gravel berm on west side of road

NEXT STEPS

Potential Repair Candidate? ☒ YES ☐ NO ☐ OTHER:

CONTACT ☐ DPW; ☐ LANDOWNER ☐ HOA; ☒ OTHER: TNC & Dept. Recreation

Site Name TB-RC-4

☒ SITE AERIAL INCLUDED

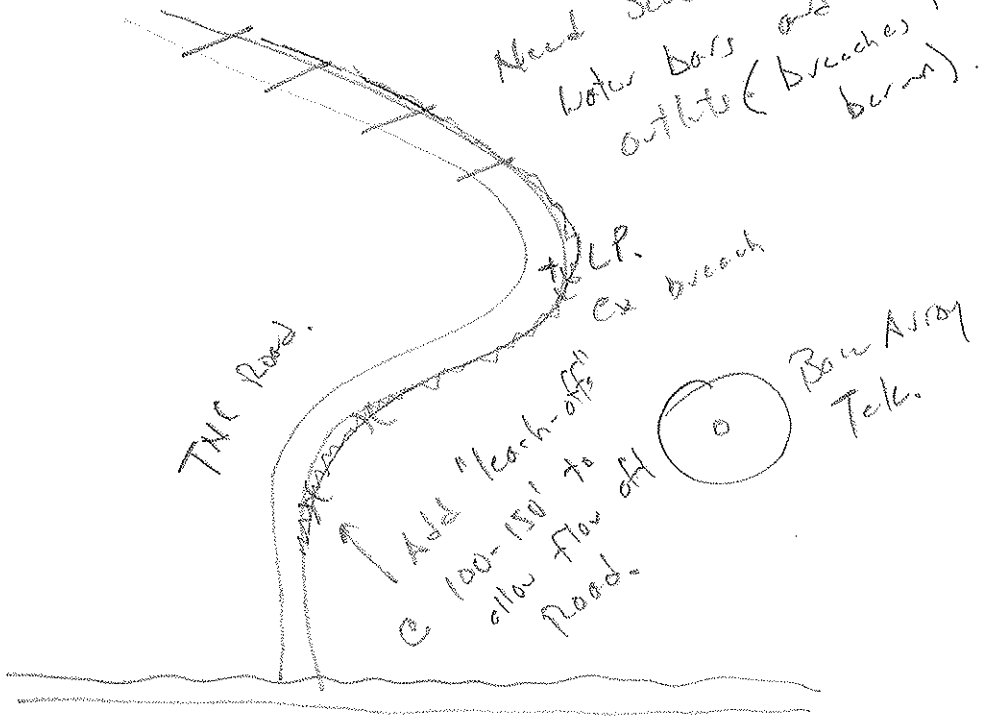
REPAIR/IMPROVEMENT CONCEPT

Narrative: Install a series of water bars along Goat Hill Rd to direct SW to road side

- Excavate swale with check dams along Rte 82 to convey water to Swale

Sketch:

See aerial (blow-up).

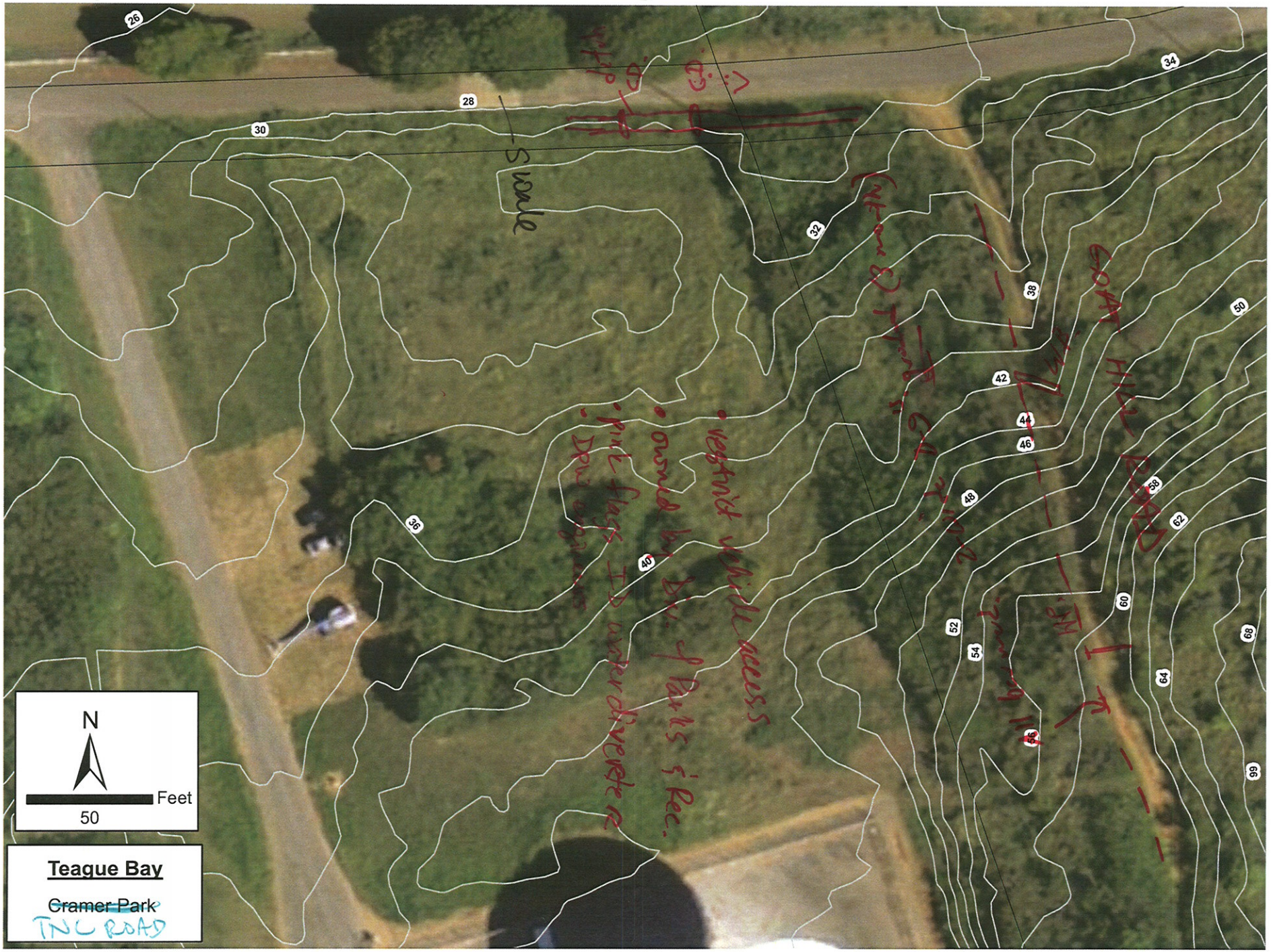


N

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

Thoughts on Maintenance Burden: ☐ Low ☐ Medium ☐ High

Site Name TB-Rc-H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64
66
68
Swale
N
Feet
50
Teague Bay
~~Cramer Park~~
TNC ROAD

TB-RC-4


20
10
30
50
60
40
golf
Swale
Teague Bay
Cramer Park
N
Feet
150

STX EE WATERSHEDS **RESIDENTIAL**

Site Name/ID: TB-RES-1/Hilltop Circle **Watershed:** Teague Bay

Date: 1/24/2011 **Assessed by:** RAE, ACS

EXISTING CONDITIONS

Homeowners Association? ☐ No ☐ Yes ☒ Unknown If yes, name and contact information:

Main Road Names: Ridge Road (off RR 60), Hilltop Circle, Hummingbird Road

Approximate Neighborhood Area (acres) 50-100 a # of lots 40 (# or % undeveloped 50%)

☐ Single Family Attached (Duplexes, Row Homes) <⅛ ⅛ ¼ ⅓ ½ acre ☐ Multifamily (Apts., Condos)

☒ Single Family Detached <¼ ¼ ½ 1 >1 acre ☐ Other

Index of Infill, Redevelopment, and Remodeling ☒ No Evidence ☐ <5% of existing units ☐ 5-10% ☐ >10%

Waste water Management? ☐ Public sewer ☒ On-site septic ☐ Small package plant

Problems observed with septic systems? ☒ No ☐ Yes (describe):

AVERAGE ROAD CONDITION

Pavement: Type ☐ All Paved ☐ mixed, mostly paved ☒ mixed, mostly unpaved 60%/40% ☐ all unpaved

Condition ☒ Good/mostly good (new, few areas requiring regrading or maintenance)
☐ Some road sections need attention (minor erosion, pavement repair needed, limited)
☐ Significant maintenance issues (most of road network in bad shape)

Drainage: Type ☐ Curb/gutter ☐ Mixed, mostly curbed ☐ Mixed, mostly open section ☒ Open drainage

Drain Inlets/Catch basins: ☒ None ☐ Clean ☐ Blocked ☐ Other:

Waterbars/dips/crossdrains: ☒ None ☐ Functioning ☐ Need maintenance ☐ Other:

Ditches: ☐ None ☒ Shallow ☐ Well-defined ☐ Stable ☐ Eroded ☐ Full of thick vegetation ☐ Other:

Discharge locations: ☒ Stable ☐ Some erosion ☐ Eroded ☐ Other:

Existing Stormwater BMPs on site? ☐ Unknown ☒ No ☐ Yes, describe:

Average Lot Cover: <10 %bare none% turf <10 %landscape(include trees) <30% rooftop <30 %driveway

Average Driveway: ☐ Impervious ☒ Pervious ☐ Eroded ☒ Drain to road ☐ Too variable

Evidence of rooftop or driveway runoff to road/drainage network?: ☒ No ☐ Yes, describe:

Evidence of residential encroachment on riparian/wetland buffer? ☒ No ☐ Yes, describe:

Evidence of Residential Pollution? NONE

☐ Limited ☐ Likely ☐ Observed for **sediment loading**
☐ Limited ☐ Likely ☐ Observed for **oil/grease**
☐ Limited ☐ Likely ☐ Observed for **trash and yard waste**
☐ Limited ☐ Likely ☐ Observed for **nutrient loading**
☐ Limited ☐ Likely ☐ Observed for **bacteria**
☐ Limited ☐ Likely ☐ Observed for **other:**

Severity: ☐ Low ☐ Medium ☐ High

Describe source:

NEXT STEPS

NONE

☐ SITE AERIAL INCLUDED

PROPOSED RESTORATION ACTIVITIES

Neighborhood-wide Actions:

- ☐ On-site retrofit potential individual lots?
- ☐ Street ROW retrofit ☐ Pond retrofit
- ☐ Parking Lot retrofit
- ☐ Better lawn/landscaping practices?
- ☐ Household hazardous waste
- ☐ Septic improvements
- ☐ Other action(s):

Narrative description:

No action - looked pretty stable

Sketch

STX EE WATERSHEDS **RESIDENTIAL**

Site Name/ID: TB-RES-2 / REEF CONDOS **Watershed:** Teague Bay

Date: 1/25/2011 **Assessed by:** RAC & ACS

EXISTING CONDITIONS

Homeowners Association? ☐ No ☒ Yes ☐ Unknown If yes, name and contact information:
Board for Condos - met George E.? on board

Main Road Names:

Approximate Neighborhood Area (acres) _____ # of lots _____ (# or % undeveloped _____)

☐ Single Family Attached (Duplexes, Row Homes) <⅛ ⅛ ¼ ⅓ ⅓ acre ☐ Multifamily (Apts., Condos)
☐ Single Family Detached <¼ ¼ ½ 1 >1 acre ☐ Other

Index of Infill, Redevelopment, and Remodeling ☐ No Evidence ☐ <5% of existing units ☐ 5-10% ☐ >10%

Waste water Management? ☐ Public sewer ☐ On-site septic ☐ Small package plant
Problems observed with septic systems? ☐ No ☐ Yes (describe):

AVERAGE ROAD CONDITION

Pavement: Type ☒ All Paved ☐ mixed, mostly paved ☐ mixed, mostly unpaved ☐ all unpaved

Condition ☐ Good/mostly good (new, few areas requiring regrading or maintenance)
☐ Some road sections need attention (minor erosion, pavement repair needed, limited)
☐ Significant maintenance issues (most of road network in bad shape)

Drainage: Type ☒ Curb/gutter ☐ Mixed, mostly curbed ☐ Mixed, mostly open section ☐ Open drainage

Drain Inlets/Catch basins: ☐ None ☒ Clean ☐ Blocked ☐ Other:
Waterbars/dips/crossdrains: ☒ None ☐ Functioning ☐ Need maintenance ☐ Other:
Ditches: ☐ None ☐ Shallow ☐ Well-defined ☐ Stable ☐ Eroded ☐ Full of thick vegetation ☐ Other:
Discharge locations: ☐ Stable ☐ Some erosion ☐ Eroded ☒ Other: discharge to ponds in fairway

Existing Stormwater BMPs on site? ☐ Unknown ☐ No ☒ Yes, describe: roof runoff directed to ponds on fairway, catch basins/curbed streets

Average Lot Cover: 0 %bare 20± % turf 25~ %landscape(include trees) _____% rooftop _____%driveway

Average Driveway: ☐ Impervious ☐ Pervious ☐ Eroded ☐ Drain to road ☐ Too variable

Evidence of rooftop or driveway runoff to road/drainage network?: ☐ No ☐ Yes, describe:
Rooftops piped

Evidence of residential encroachment on riparian/wetland buffer? ☐ No ☐ Yes, describe:

Evidence of Residential Pollution?
☐ Limited ☐ Likely ☐ Observed for **sediment loading**
☐ Limited ☐ Likely ☐ Observed for **oil/grease**
☐ Limited ☐ Likely ☐ Observed for **trash and yard waste**
☐ Limited ☐ Likely ☐ Observed for **nutrient loading**
☐ Limited ☐ Likely ☐ Observed for **bacteria**
☐ Limited ☐ Likely ☐ Observed for **other:**

Severity: ☒ Low ☐ Medium ☐ High

Describe source:

NEXT STEPS

Site ID _____

☐ SITE AERIAL INCLUDED

PROPOSED RESTORATION ACTIVITIES

Neighborhood-wide Actions:

- ☐ On-site retrofit potential individual lots?
- ☐ Street ROW retrofit ☐ Pond retrofit
- ☐ Parking Lot retrofit
- ☐ Better lawn/landscaping practices?
- ☐ Household hazardous waste
- ☐ Septic improvements
- ☐ Other action(s):

Narrative description:

Sketch

STX EE WATERSHEDS **RESIDENTIAL**

Site Name/ID: TB-RES-3/Catherina's Hope **Watershed:** Teague Bay

Date: 1/25/2011 **Assessed by:** RAC & ACS

EXISTING CONDITIONS

Homeowners Association? ☐ No ☒ Yes ☐ Unknown If yes, name and contact information: Have info from public meeting

Main Road Names:

Approximate Neighborhood Area (acres) _____ # of lots _____ (# or % undeveloped _____)

☐ Single Family Attached (Duplexes, Row Homes) <⅛ ⅛ ¼ ⅓ ⅓ acre ☐ Multifamily (Apts., Condos)

☒ Single Family Detached <¼ ¼ ½ 1 >1 acre ☐ Other

Index of Infill, Redevelopment, and Remodeling ☐ No Evidence ☐ <5% of existing units ☐ 5-10% ☐ >10%

Waste water Management? ☐ Public sewer ☒ On-site septic ☐ Small package plant

Problems observed with septic systems? ☒ No ☐ Yes (describe):

AVERAGE ROAD CONDITION

Pavement: Type ☐ All Paved ☒ mixed, mostly paved ☐ mixed, mostly unpaved ☐ all unpaved — in process of paving large section w/ concrete

Condition ☒ Good/mostly good (new, few areas requiring regrading or maintenance)
☐ Some road sections need attention (minor erosion, pavement repair needed, limited)
☐ Significant maintenance issues (most of road network in bad shape)

Drainage: Type ☐ Curb/gutter ☐ Mixed, mostly curbed ☐ Mixed, mostly open section ☒ Open drainage

Drain Inlets/Catch basins: ☒ None ☐ Clean ☐ Blocked ☐ Other:

Waterbars/dips/crossdrains: ☒ None ☐ Functioning ☐ Need maintenance ☐ Other:

Ditches: ☒ None ☐ Shallow ☐ Well-defined ☐ Stable ☐ Eroded ☐ Full of thick vegetation ☐ Other:

Discharge locations: ☒ Stable ☐ Some erosion ☐ Eroded ☐ Other:

Existing Stormwater BMPs on site? ☐ Unknown ☒ No ☐ Yes, describe:

Average Lot Cover: _____%bare _____% turf _____%landscape(include trees) _____% rooftop _____%driveway

Average Driveway: ☐ Impervious ☐ Pervious ☐ Eroded ☐ Drain to road ☐ Too variable

Evidence of rooftop or driveway runoff to road/drainage network?: ☒ No ☐ Yes, describe:

Evidence of residential encroachment on riparian/wetland buffer? ☒ No ☐ Yes, describe:

Evidence of Residential Pollution? None

☐ Limited ☐ Likely ☐ Observed for **sediment loading**
☐ Limited ☐ Likely ☐ Observed for **oil/grease**
☐ Limited ☐ Likely ☐ Observed for **trash and yard waste**
☐ Limited ☐ Likely ☐ Observed for **nutrient loading**
☐ Limited ☐ Likely ☐ Observed for **bacteria**
☐ Limited ☐ Likely ☐ Observed for **other:**

Severity: ☐ Low ☐ Medium ☐ High

Describe source:

NEXT STEPS

☐ SITE AERIAL INCLUDED

PROPOSED RESTORATION ACTIVITIES

Neighborhood-wide Actions:

- ☐ On-site retrofit potential individual lots?
- ☐ Street ROW retrofit ☐ Pond retrofit
- ☐ Parking Lot retrofit
- ☐ Better lawn/landscaping practices?
- ☐ Household hazardous waste
- ☐ Septic improvements
- ☐ Other action(s):

Narrative description:

Sketch

STX EE WATERSHEDS **HOTSPOT/POLLUTION PREVENTION**

Site Name/ID: TB-H-1 / Duggans Reef Restaurant **Watershed:** Teague Bay

Date: 1/25/2011 **Assessed by:** RAL, ACS

EXISTING CONDITIONS

Contact Information/location: Restaurant Owner

Land Use: ☒ Commercial ☐ Industrial ☐ Institutional ☐ Municipal ☐ Golf Course ☐ Transport-Related ☐ Marina ☐ Animal Facility ☐ Other:

Basic Description of Operation: Dumpster/Dumping area behind Duggan's kitchen entrance

Existing stormwater management on-site? ☐ Unknown ☒ No ☐ Yes, describe:

Condition of drain inlets on-site: ☒ None ☐ Good ☐ Need maintenance

Evidence of riparian/wetland buffer encroachment: ☐ Unknown ☐ No ☐ Yes, describe:

Potential pollutants associated with:

- ☐ Vehicular operations (fueling, storage, maintenance)
- ☐ Waste management (dumping)
- ☐ Outdoor material storage (uncovered, leaking, no secondary containment)
- ☐ Landscaping (over fertilizing, irrigation)
- ☐ Building/parking lot maintenance (washdowns)
- ☐ Other:

Pollutant of concern?

- ☐ Limited ☐ Likely ☐ Observed for **sediment loading**
- ☐ Limited ☐ Likely ☐ Observed for **oil/grease**
- ☐ Limited ☐ Likely ☐ Observed for **trash**
- ☐ Limited ☐ Likely ☐ Observed for **nutrient loading**
- ☐ Limited ☐ Likely ☐ Observed for **bacteria**
- ☐ Limited ☐ Likely ☐ Observed for **other:**

Severity of Problem: ☐ Low ☒ Medium ☐ High

Describe Conditions: Poor dumpster practices assoc. w/ kitchen & restaurant operation Also large piles of landscape cuttings & debris on road btwn kitchen & Reef R.O. plant

PROPOSED RESTORATION ACTIVITIES

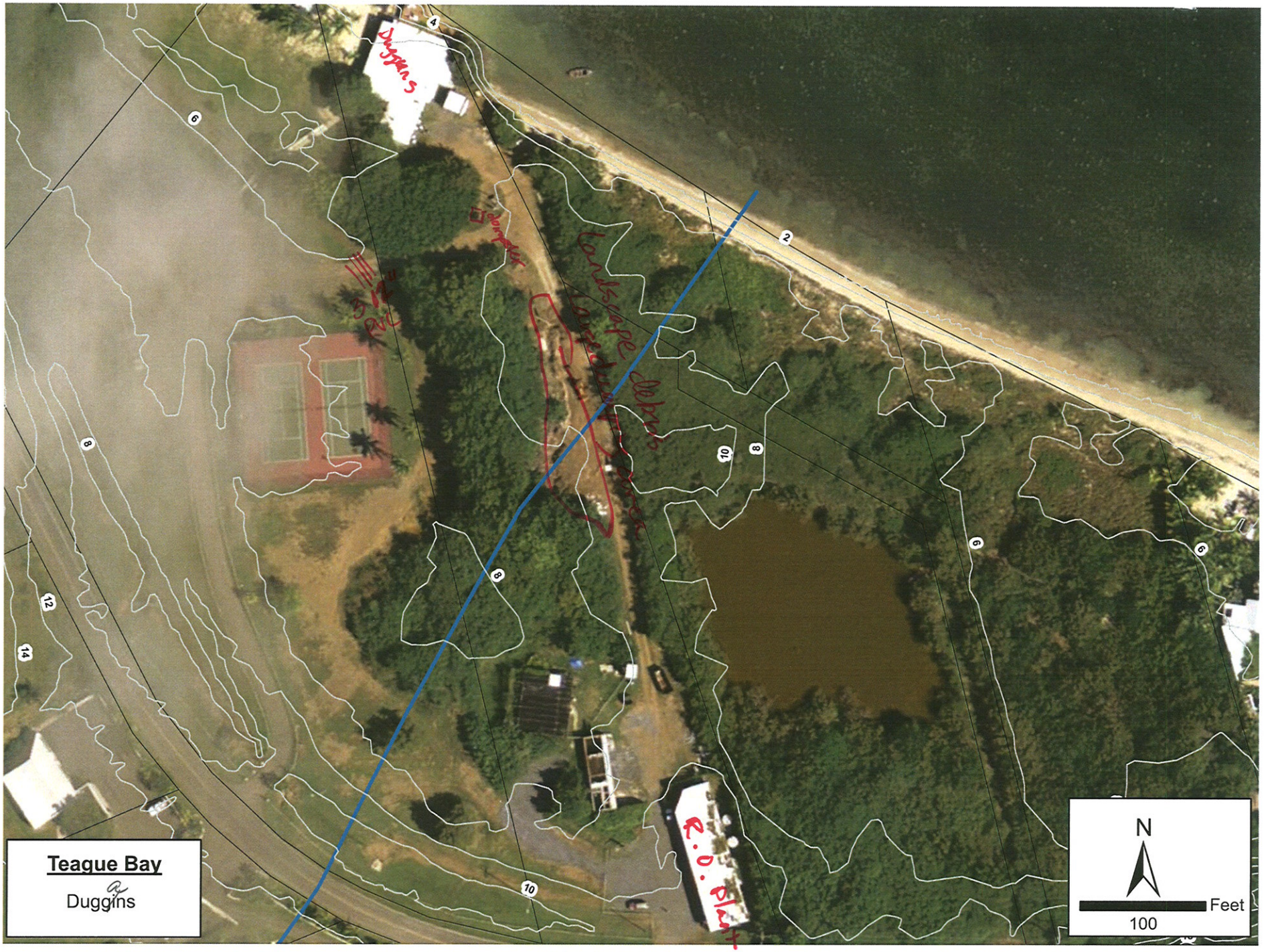
Educate Restaurant owner on proper disposal/dumpster practices. Install containment structure for other debris piles

NEXT STEPS

☒ SITE AERIAL INCLUDED

SKETCH

See aerial


Duggins
Landscape debris
R.O. plant
Teague Bay
@ Duggins
N
Feet
100

TB-H-1