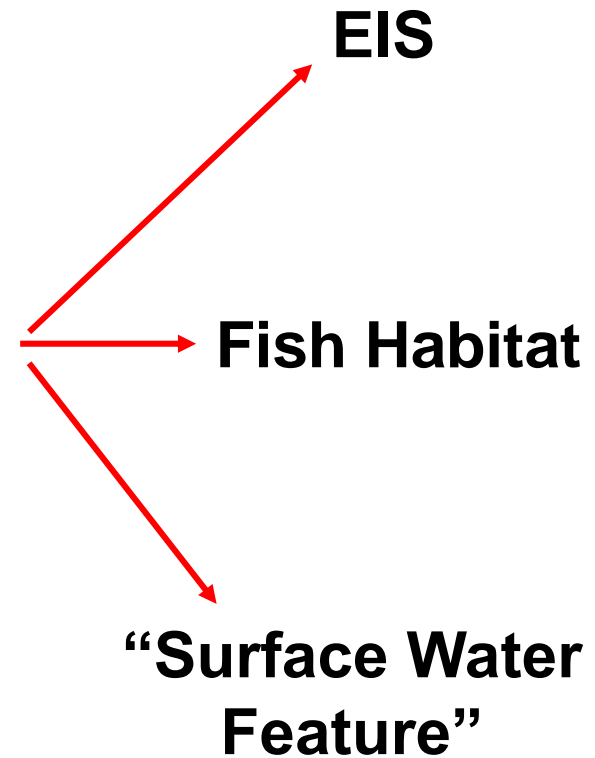




Practical Implementation
of the
HDFA Guidelines
within
Eastern Ontario

2014 Provincial Policy Statement

Under the *Planning Act*



Rivers...



Streams...



Swales?

Date & Time: Wed May 3 12:41:48 EDT 2017
Position: 18 N 458138 5031018
Altitude: 82m
Datum: WGS-84
Azimuth/Bearing: 333° N27W 5920mils (True)
Elevation Angle: -03.6°
Horizon Angle: -00.4°
Zoom: 1X
can 544 r10 bottom end discontinuous puddles



PPS - Surface water feature

Water-related features on the earth's surface, **including headwaters**, rivers, stream channels, inland lakes, seepage areas, recharge/discharge areas, springs, wetlands, and associated riparian lands that can be defined by their soil moisture, soil type, vegetation or topographic characteristics.

Headwater Features



Evaluation, Classification and Management of Headwater Drainage Features Guidelines January 2014



Headwater Features...

Per the guideline...

Non-permanently flowing drainage features that may not have defined bed or banks; they are first-order and zero-order intermittent and ephemeral channels, swales and connected headwater wetlands

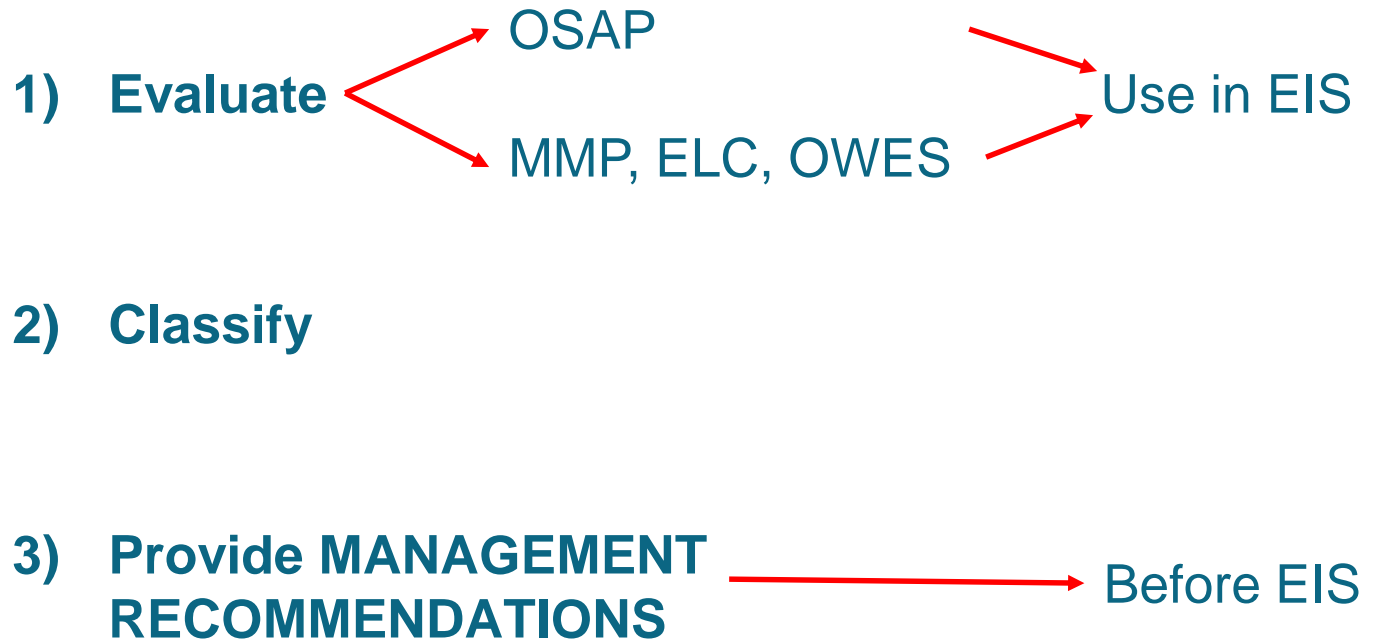
Identifying HDFs...

Per the guideline...

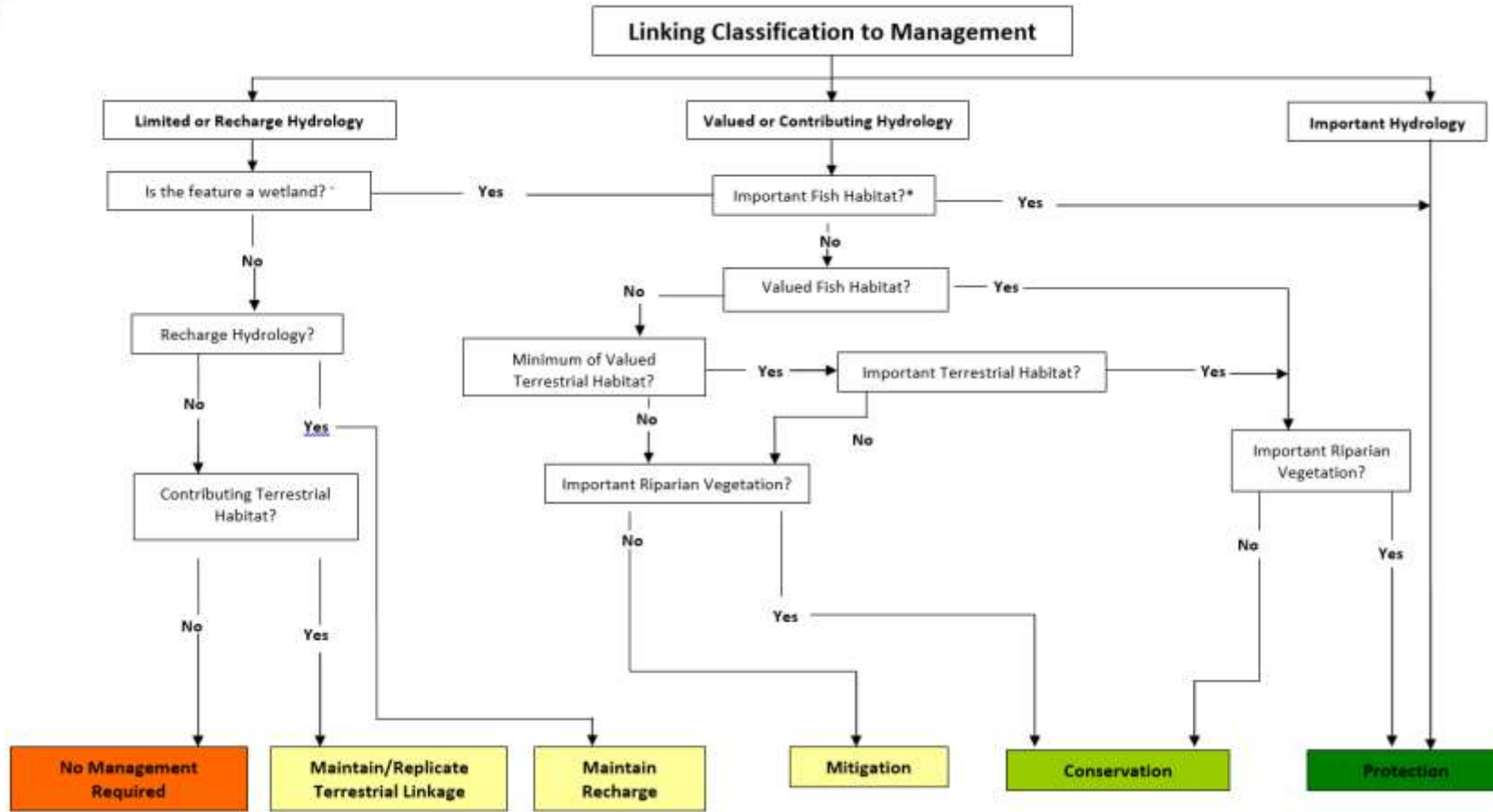
- part of the drainage network (aerial photography, and/or ArcHydro analysis), OR...
- groundwater seepage area or spring, OR...
- a connected headwater wetland (a surface outlet connects to downstream), BUT ...
- ***NOT*** a mapped or known perennially flowing stream.



HDF Assessment



Management Recommendations



Classification – 1) Hydrology

Important

Perennial

- complex form
- clearly defined bed and banks
- erosion/sedimentation
- sorted substrate

Valued

Intermittent

- dry by July
- some substrate sorting and channel form

Contributing

Ephemeral

- only spring freshet or during rains
- limited substrate sorting and channel form

Limited

Dry/Standing Water

- may have ill-defined channels as a relic of past flows
- groundwater recharge



Classification – 2) Riparian

- **Important Functions**
 - dominated by forest or thicket/scrubland communities or wetland
- **Valued Functions**
 - dominated by meadow and there are no important riparian functions.
- **Contributing Functions**
 - dominated by lawn and there are no important or valued riparian functions
- **Limited Functions**
 - dominated by cropped land or no vegetation, and there are no important, valued or contributing riparian functions

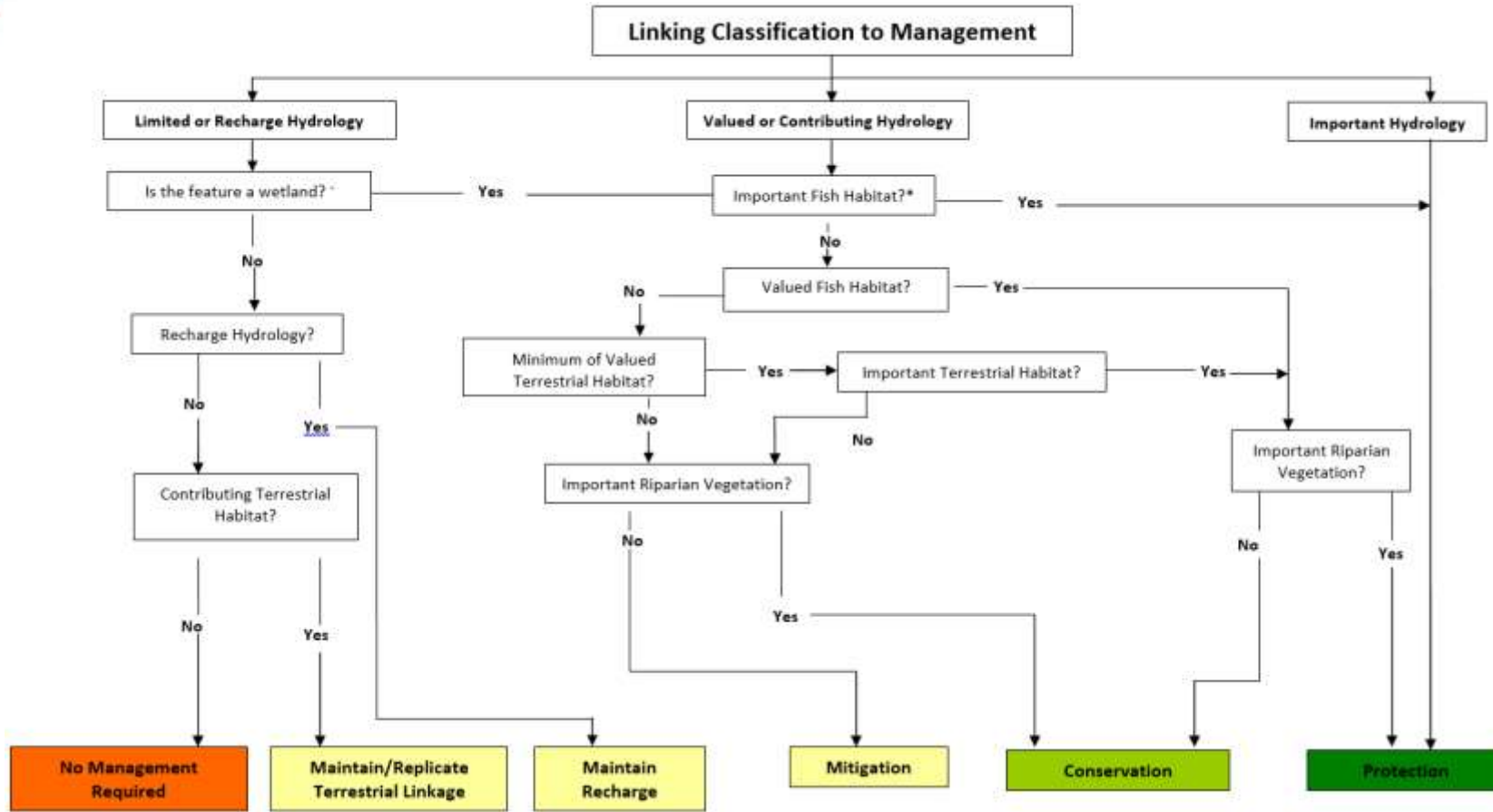
Classification – 4) Terrestrial

- **Important Functions**
 - wetlands with breeding amphibians
- **Valued Functions**
 - no breeding amphibians are present BUT...
 - only general amphibian habitat
- **Contributing Functions**
 - wetland habitat occurs within the corridor, OR
 - provides movement opportunities for non-amphibian species
- **Limited Functions**
 - no terrestrial habitat

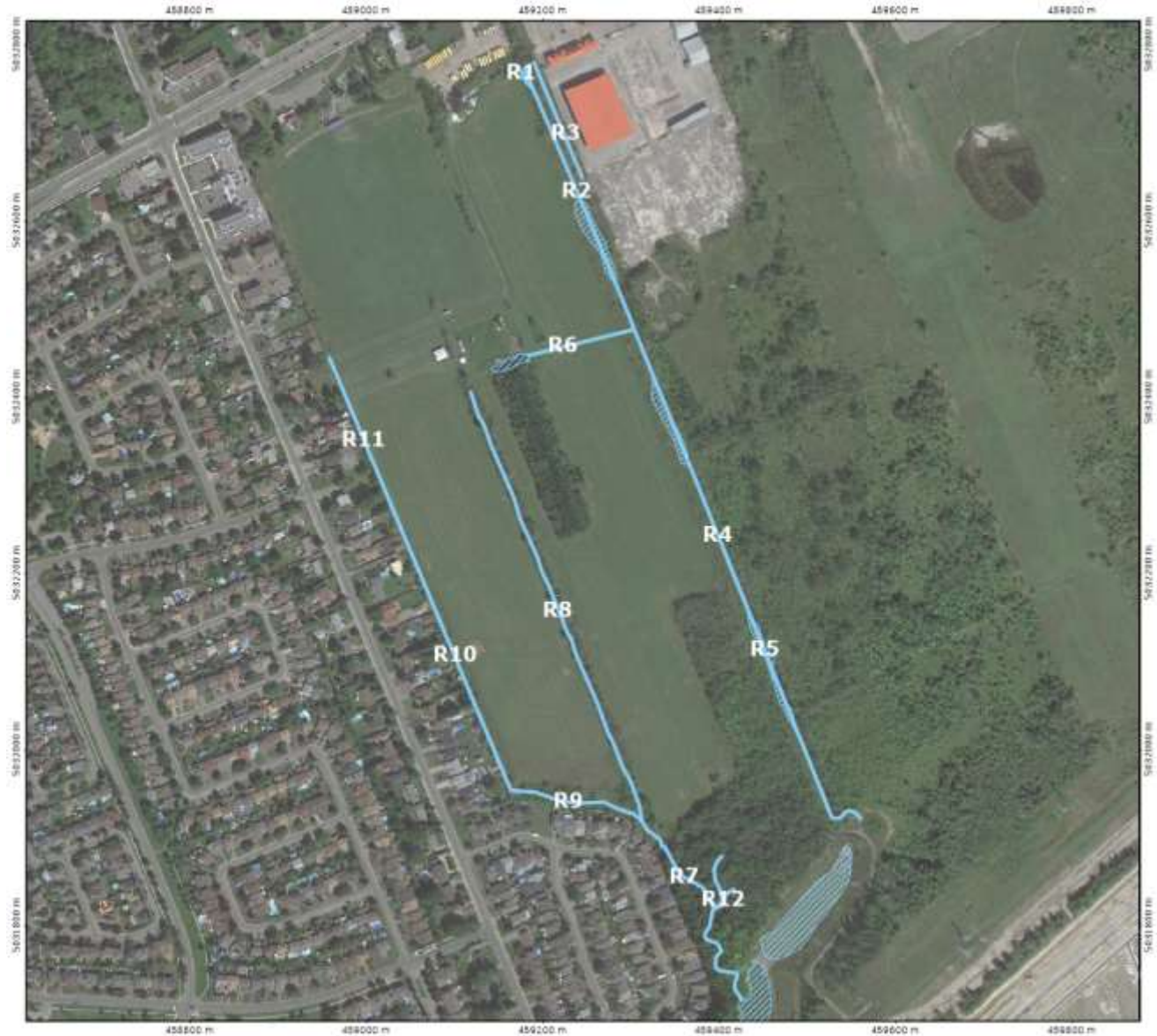
Classification – 3) Fish

- **Important Functions**
 - fish are present year round or fish spawning/rearing
 - SAR habitat
- **Valued Functions**
 - fish present in spring only or...
 - suitable habitat identified for feeding, cover, refuge, migration
 - contributing habitat for SAR
- **Contributing Functions**
 - allochthonous transport to downstream habitat

Management Recommendations

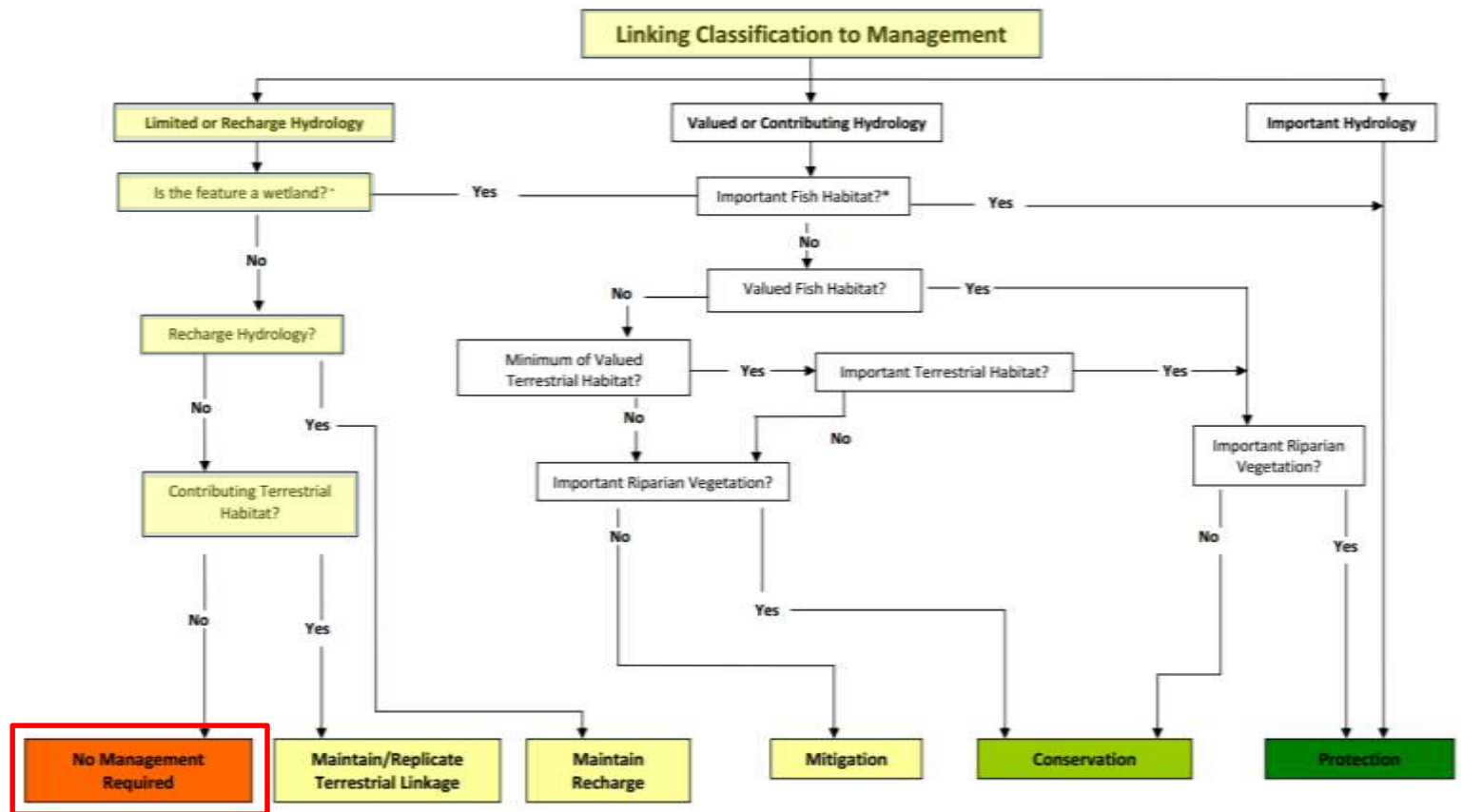


Case Study





R1
R3
R6



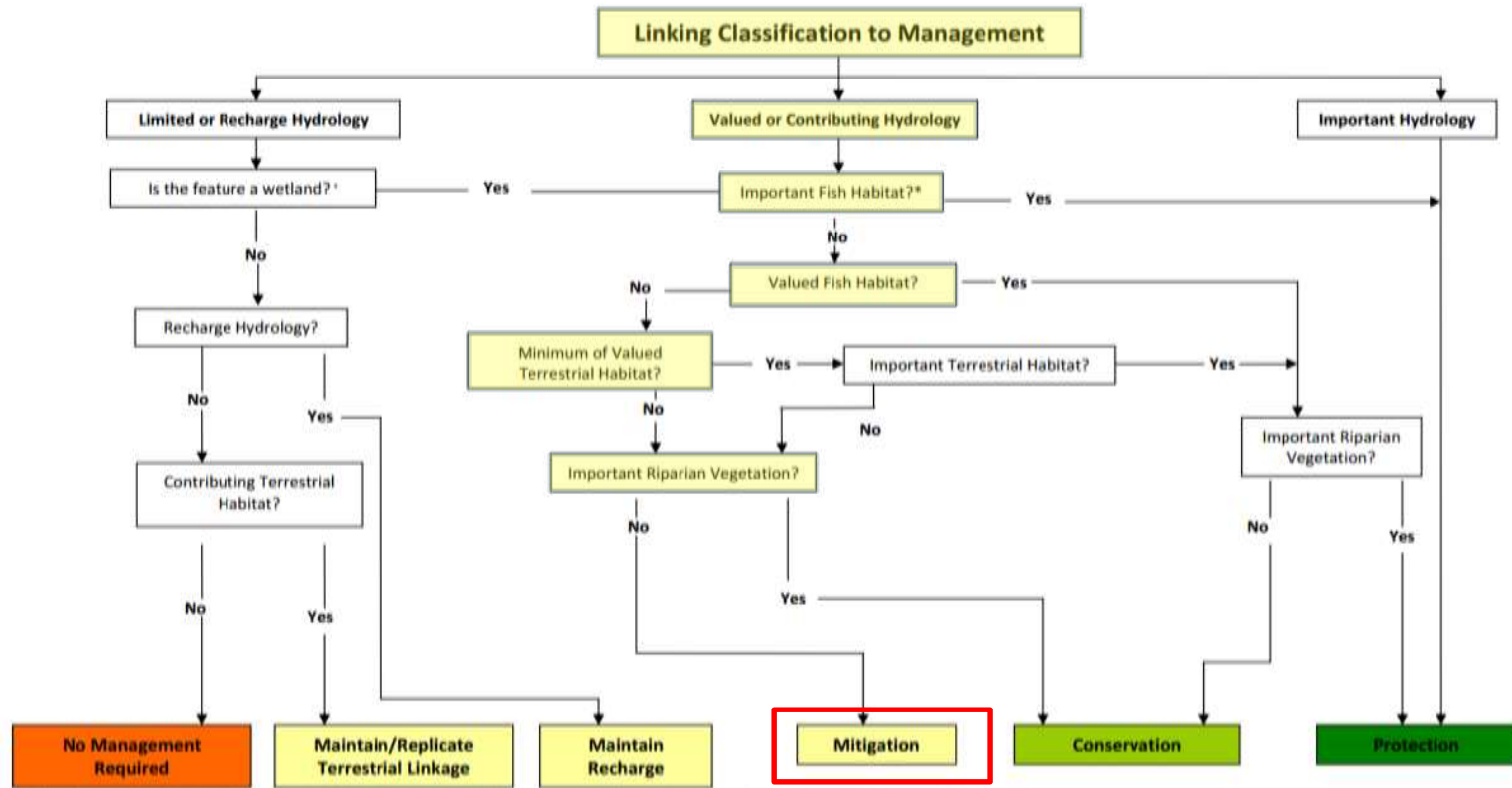
1. Provide Limited Hydrology;
2. Are not wetlands;
3. Are unlikely to provide recharge hydrology (poorly drained clay soils); and
4. Are not Contributing Terrestrial Habitat.

... **No Management Required**





R2
R4
R5



1. Provide Contributing Hydrology;
2. Do not provide Important Fish Habitat;
3. Do not provide Valued Fish Habitat;
4. Do not provide a minimum of Valued Terrestrial Habitat; and
5. Do not provide Important Riparian Vegetation

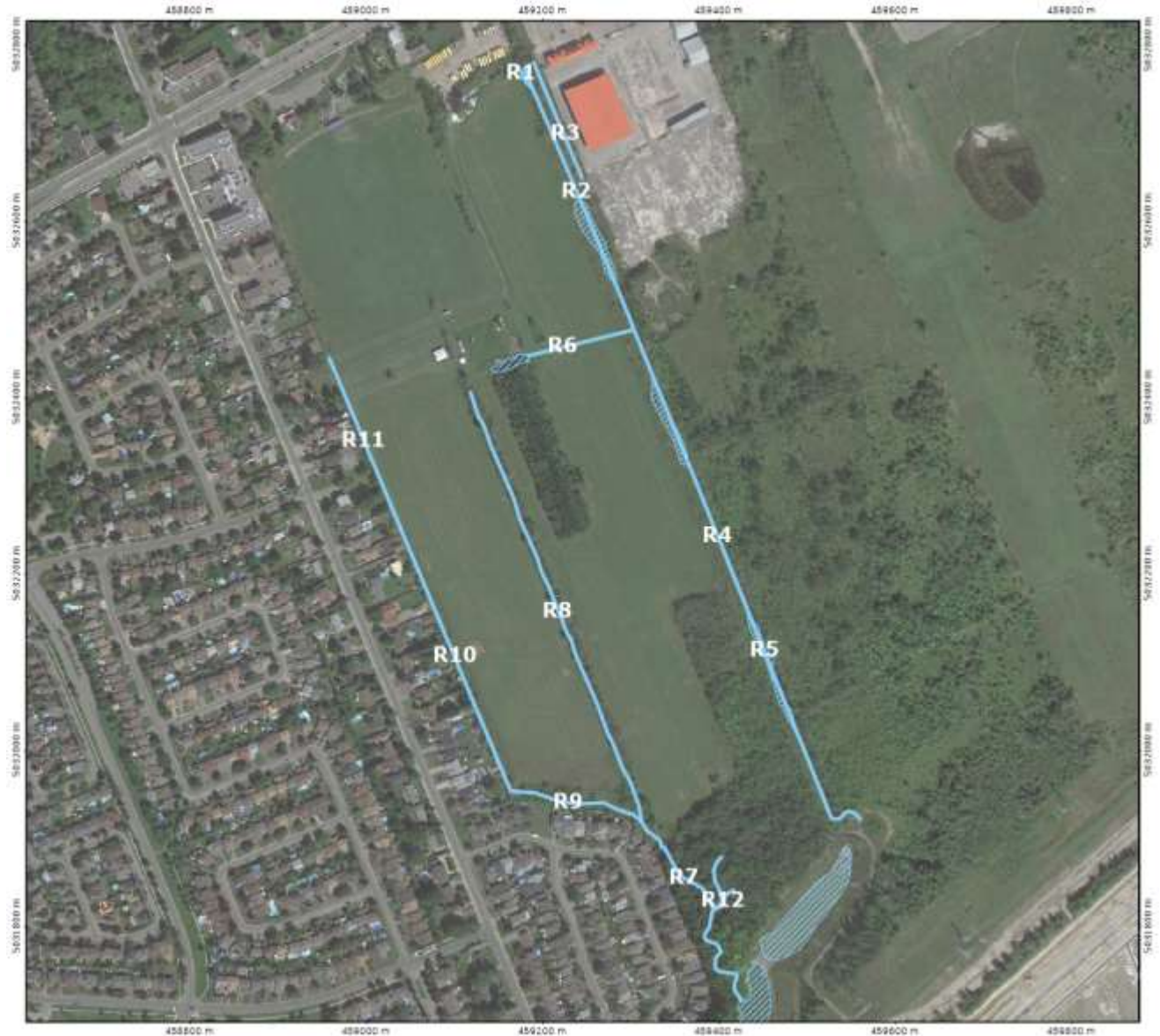
... **Mitigation**





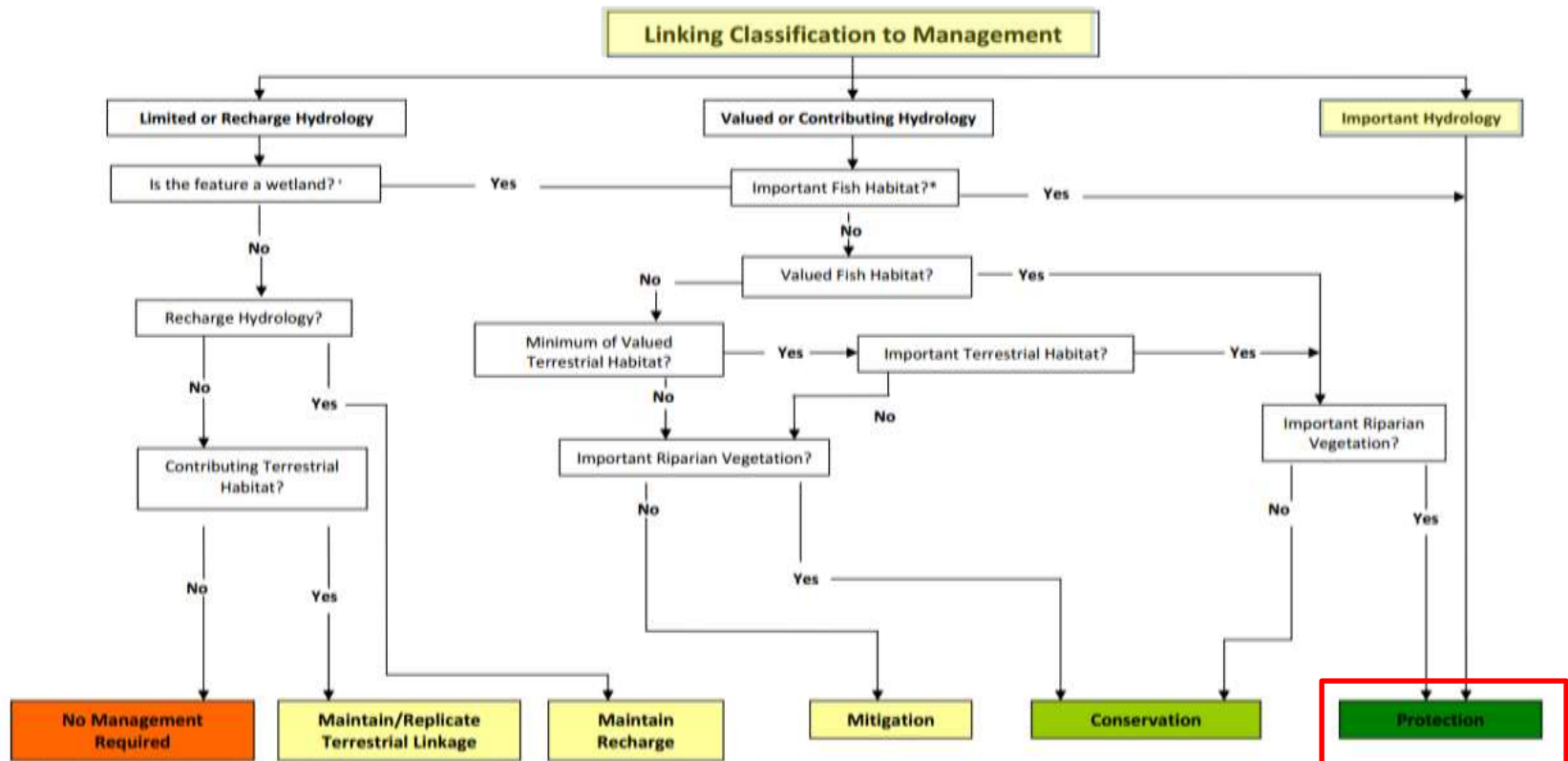
R8
R10
R11

Same again...



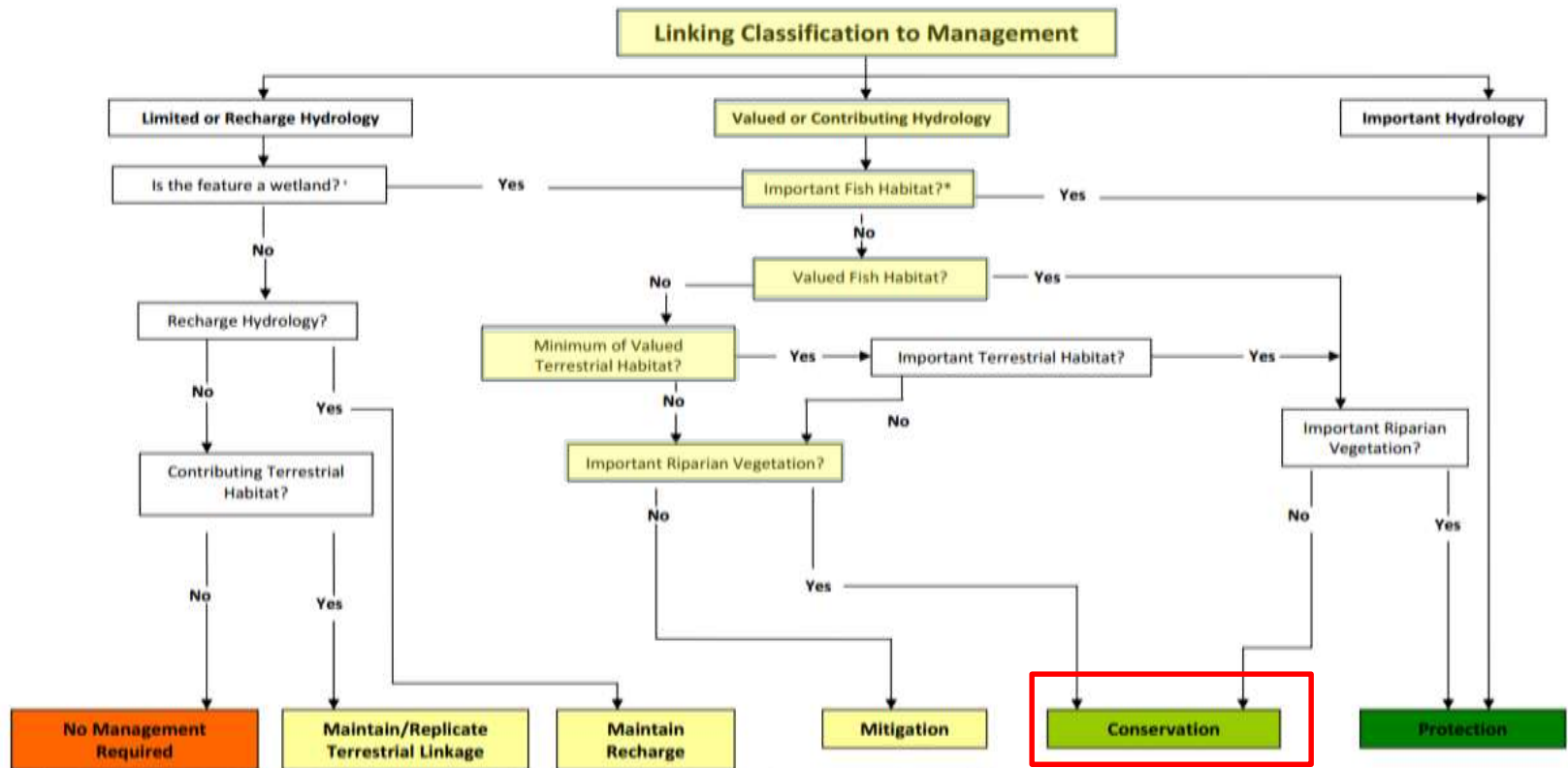


R9/R7





R12



- 
-
- Questions?