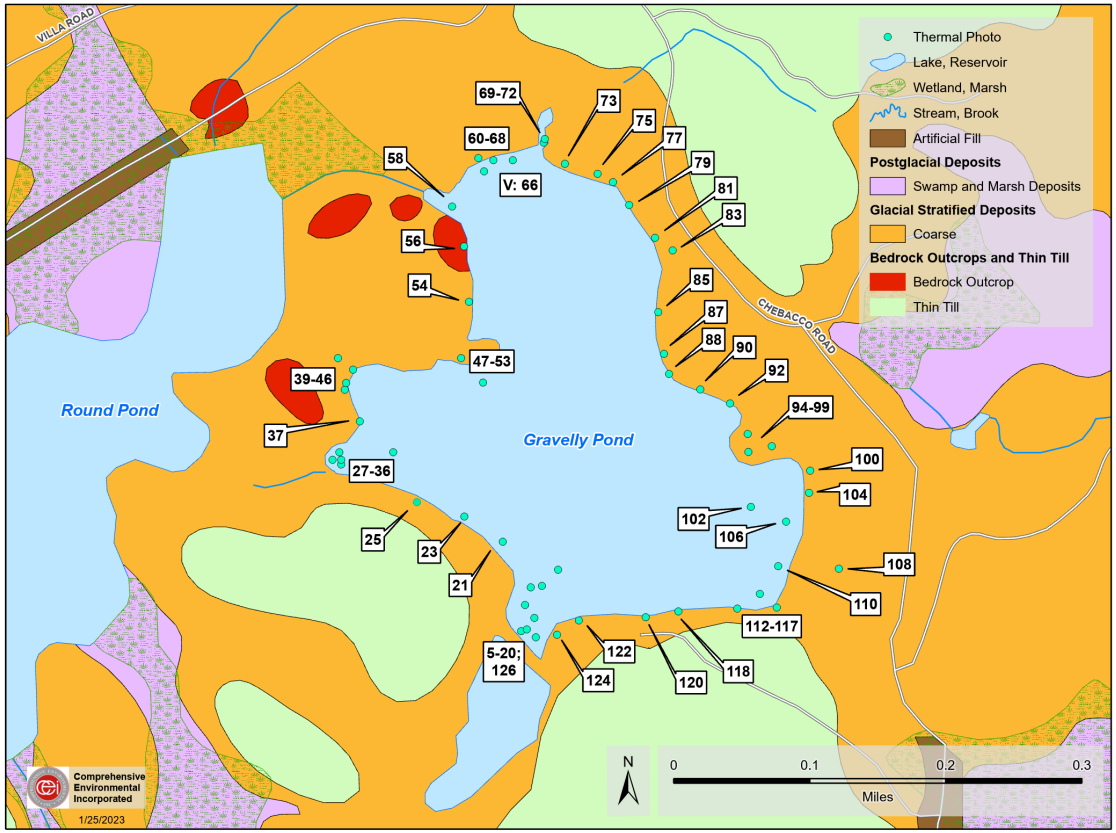
GRAVELLY POND THERMAL SURVEY

PRELIMINARY RESULTS

TRUSLOW RESOURCE CONSULTING LLC/CEI INC.

TASK FORCE MEETING 1-25-23

Infrared (IR) and color images taken by drone at over 60 locations at pond edge – Dec 20, 2022

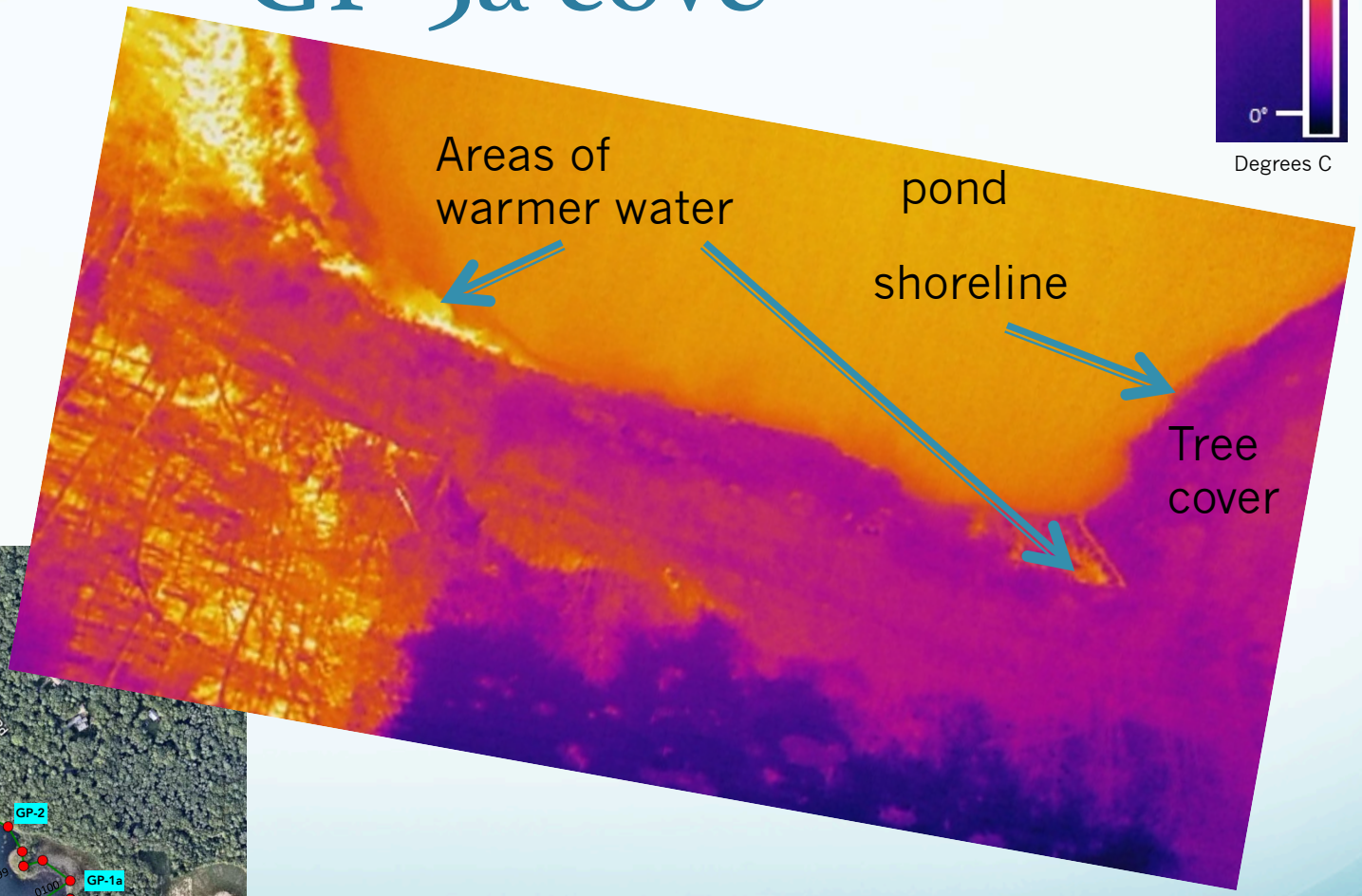


Black and white IR images converted to color in camera

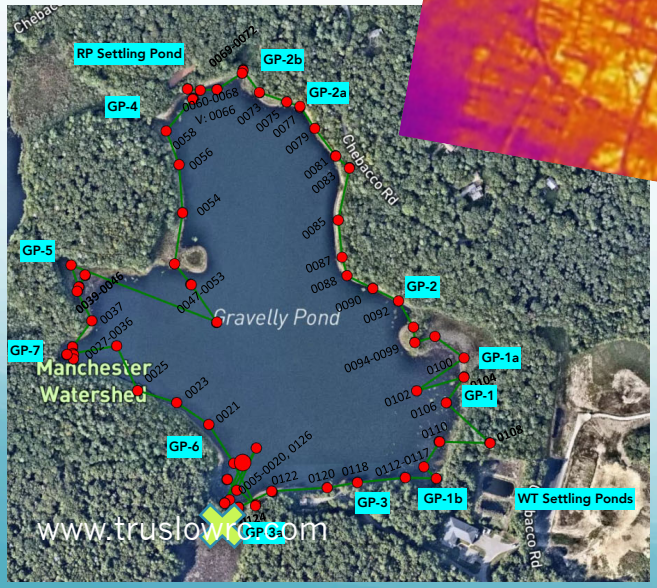
- Temperature color relative; temperature scale approximate
- Light yellow/white – warmest temperatures
- Dark blue - coolest temperatures
- Some ice cover near shoreline in several areas
- Followed the sun - primarily taken in sun not shade
- Video taken at Round Pond well settling pond discharge point

GP-3a cove

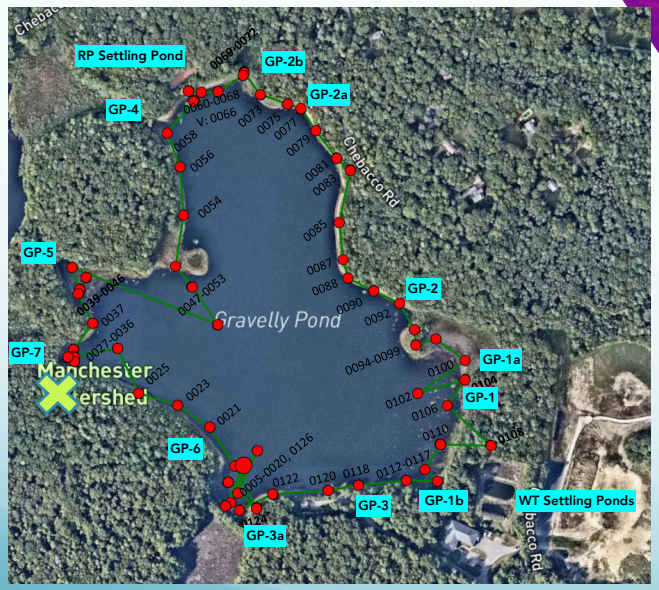

N

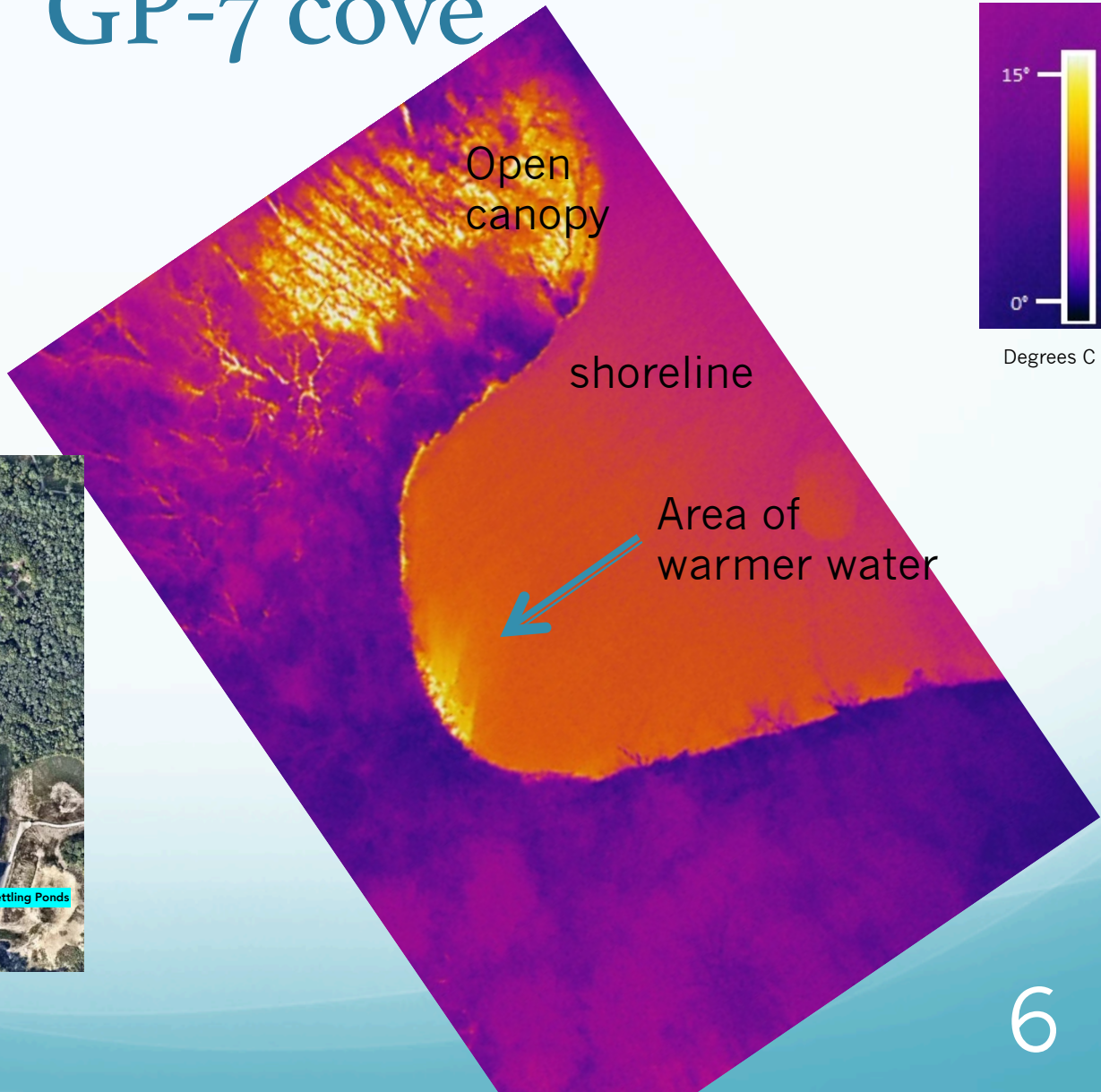

Areas of warmer water
pond
shoreline
Tree cover


15°
0°
Degrees C


RP Settling Pond
GP-2b
GP-2a
GP-4
GP-5
GP-2
GP-1a
GP-1
GP-7
GP-6
GP-3
GP-1b
WT Settling Ponds
Gravelly Pond
Manchester Watershed
Chapacco Rd
www.truslow.com

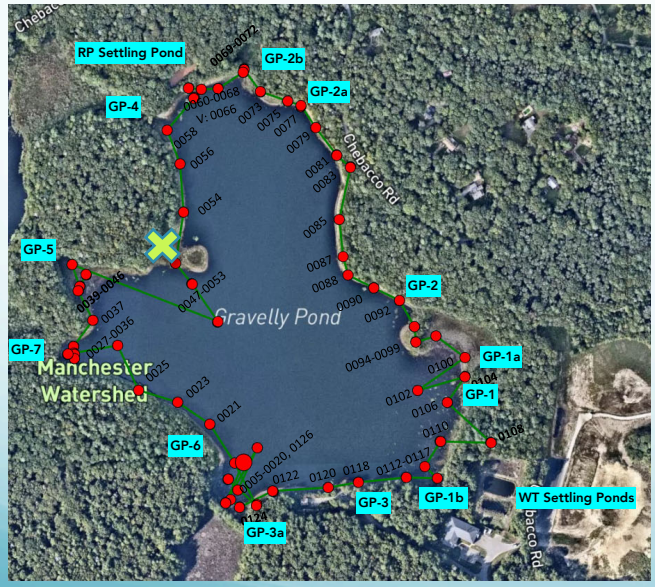
GP-7 cove

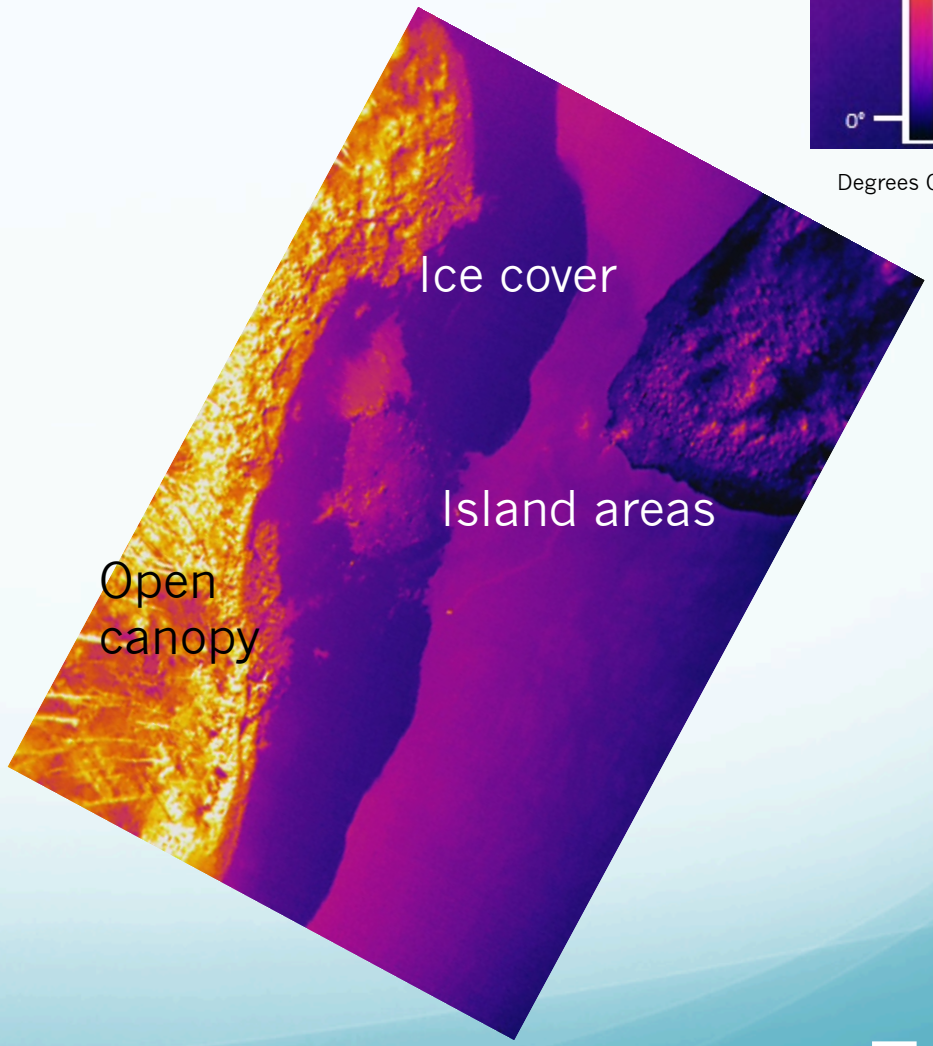

RP Settling Pond
GP-2b
GP-2a
GP-4
GP-5
GP-2
GP-7
GP-1a
GP-1
GP-6
GP-3
GP-1b
WT Settling Ponds
GP-3a
Gravelly Pond
Chebacco Rd


N
Open canopy
shoreline
Area of warmer water
15°
0°
Degrees C

GP-5a island

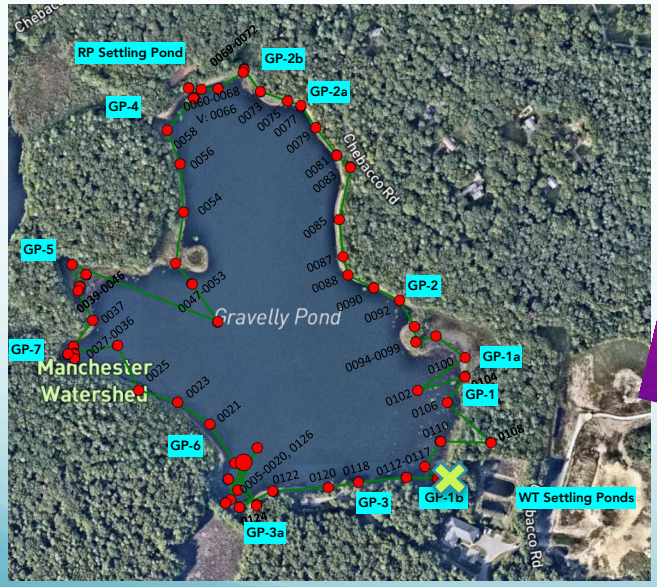
N

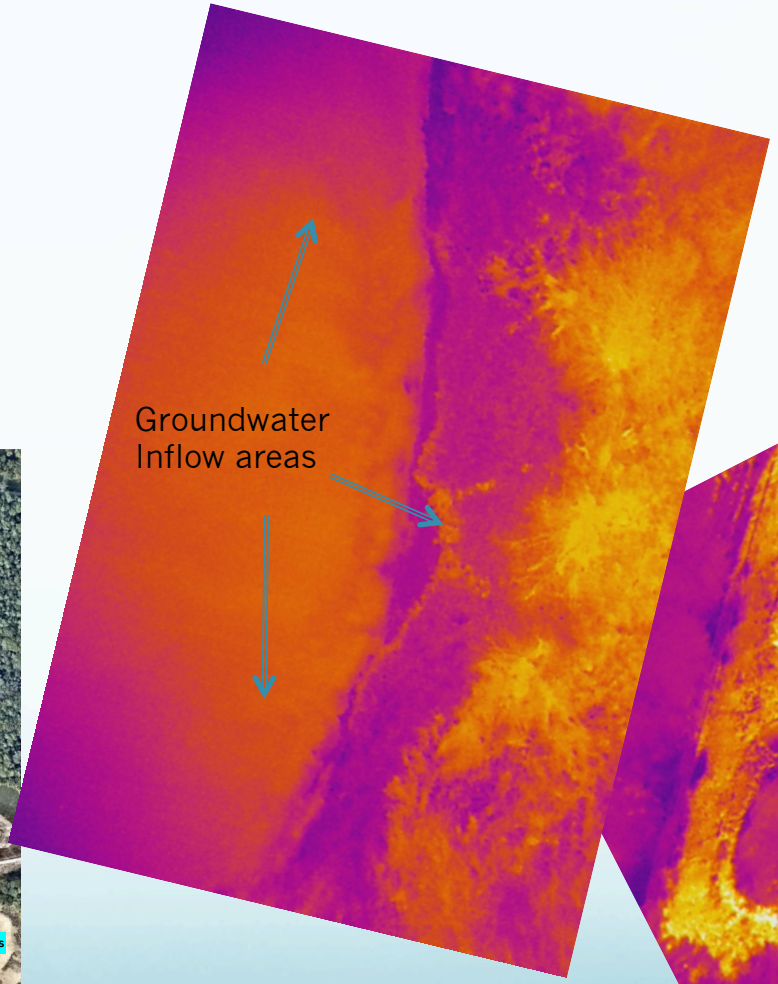




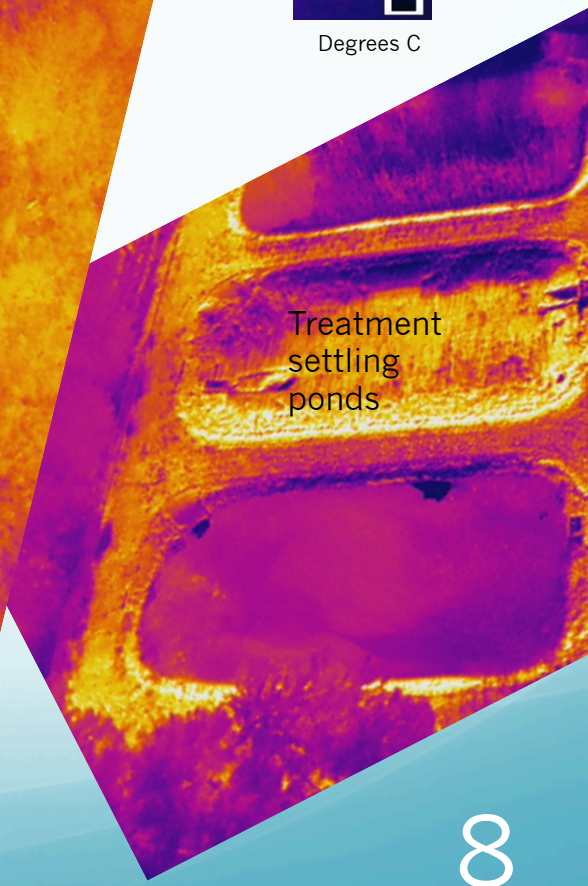
Degrees C

GP-1b area


N
RP Settling Pond
GP-2b
GP-2a
GP-4
GP-5
GP-2
GP-1a
GP-1
GP-7
GP-6
GP-3
GP-1b
WT Settling Ponds
GP-3a
Chebacco Rd
Gravelly Pond
Manchester Watershed

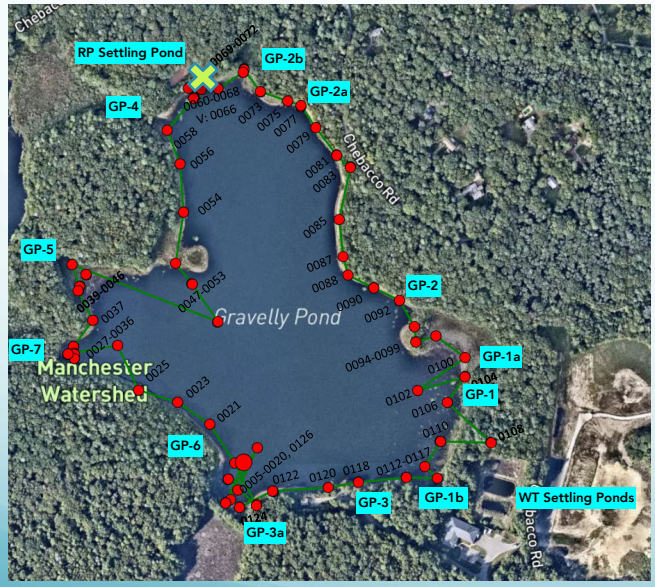

Groundwater Inflow areas


15°
0°
Degrees C

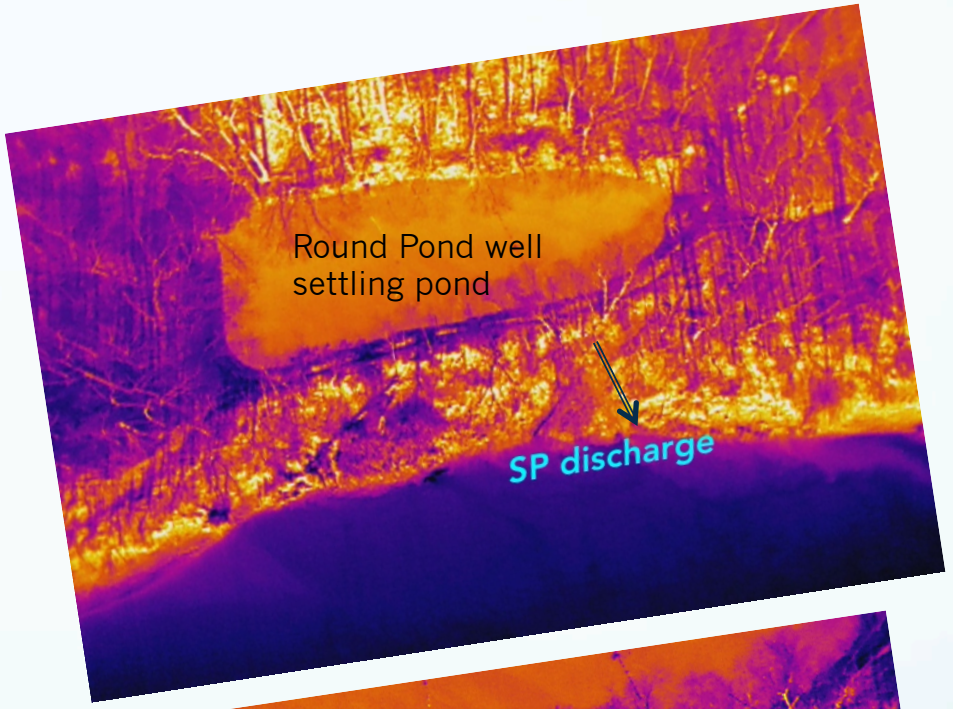

Treatment settling ponds

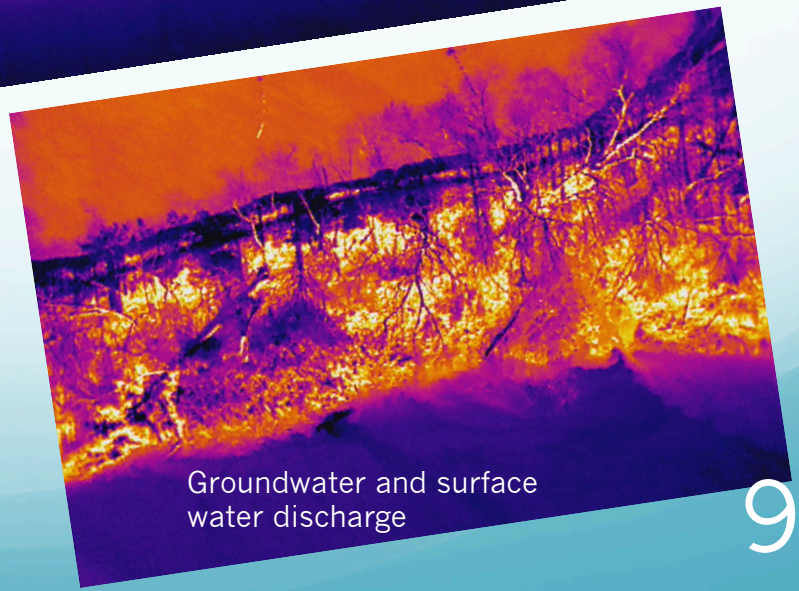
Round Pond Well Settling Pond area

N

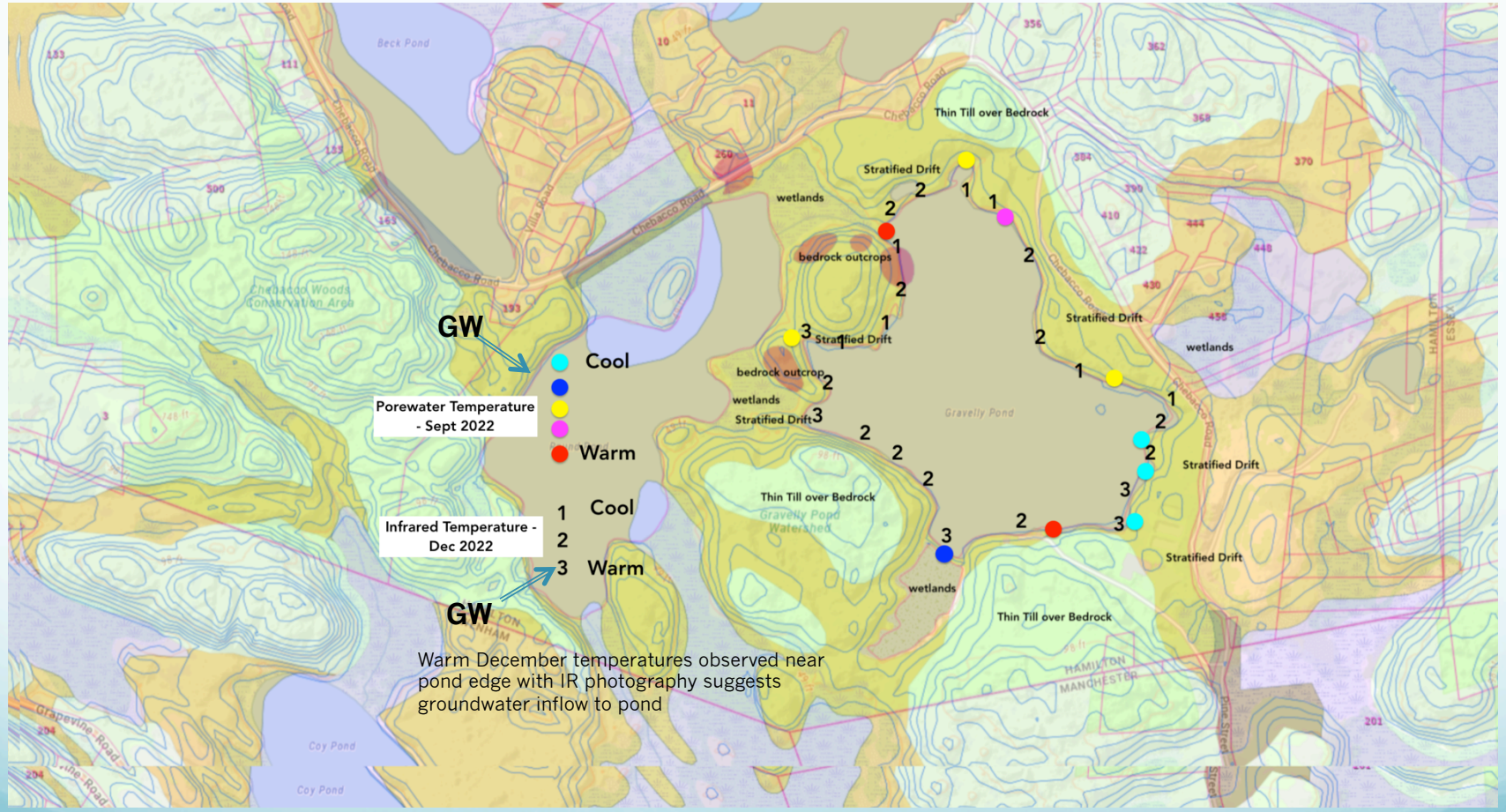


Degrees C





Gravelly Pond Area Geology and Thermal Survey Comparisons



Discussion

- The thermal survey was conducted in September and December 2022 to evaluate water temperature contrasts that can indicate areas of groundwater flow to the pond.
- Groundwater temperatures are stable over the year and fall between 50 and 55 degrees Farenheit (10 to 13 degrees C).
- Relatively warm water temperatures observed near the pond edge in December 2022 with IR photography suggests groundwater inflow to pond (areas numbered 2 and 3 on slide 11 map). Shallow pond temperatures measured were near freezing (3 C or 37 F)
- September pond temperatures were close to 75 F or 24 C , cooler temperatures in porewater in September suggest groundwater inflow as indicated by light and medium blue dots on slide 11 map.
- General agreement between fall field and winter IR surveys
- Several areas not surveyed in September appear to be groundwater discharge areas
- Warmest areas in December – areas of stratified drift that co-occur with surface water feature –preferential groundwater discharge to pond. Many other apparent areas of groundwater discharge around pond.
- Additional field verification in spring could further confirm results