Dufferin Aggregates
A division of Holcim (Canada) Inc.

Strength. Performance. Passion.

Paris Pit CAP Meeting

June 24, 2014

Agenda

Welcome

Minutes from last meeting

Paris Pit – General Update

PTTW Process:

- Background
- Private Well Survey Results
- Pesticides
- Monitoring

General Discussion & Questions

Next Steps: Meeting and Topics

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Update

- PTTW & ECA (isw) applications
  - All MOE questions have been addressed
  - Waiting for MOE to schedule technical agency meeting
- Watts Pond Road Upgrade
  - Working on details for the road design
- Archaeology
  - Stage 3& 4 work is underway and will be completed in June-July.
- Fencing will start in July
- Stripping Site haul road and first area to be extracted in July-August
- Earth Week event

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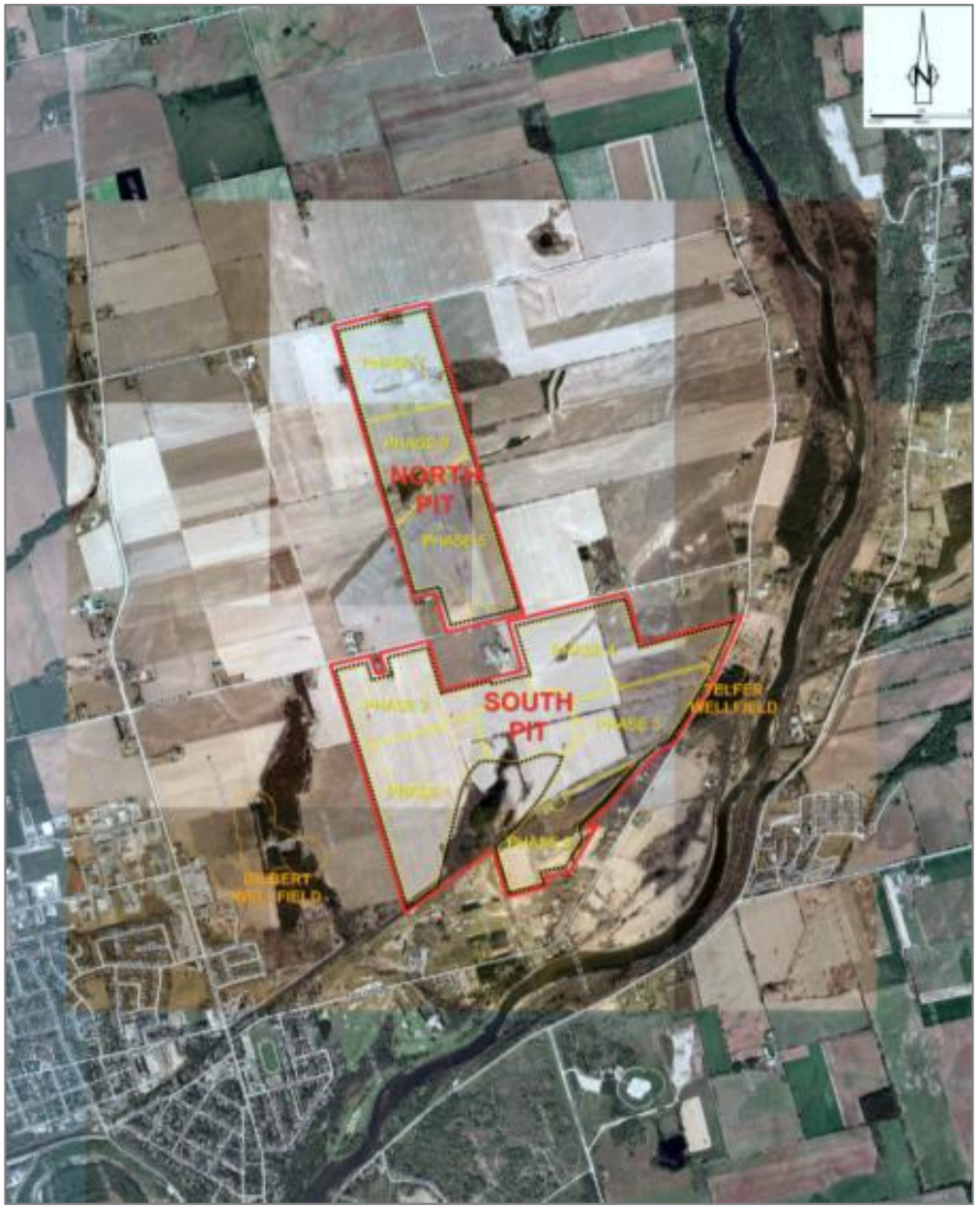
Background: Paris Pit PTTW Application

- Pre-Consultation 2012
- Filed March 13, 2013
- EBR comment period extended to June 18, 2013
- Copy of the application was provided to MOE, MNR, County of Brant, Six Nations Council, Haudenosaunee Development Institute, GRCA, and CCOB



CRA 078410(INT001)GIS-WA003 April 08, 2013

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PTTW Application – Requested 18,185 L/min, 12 hours/day, 200 days/year

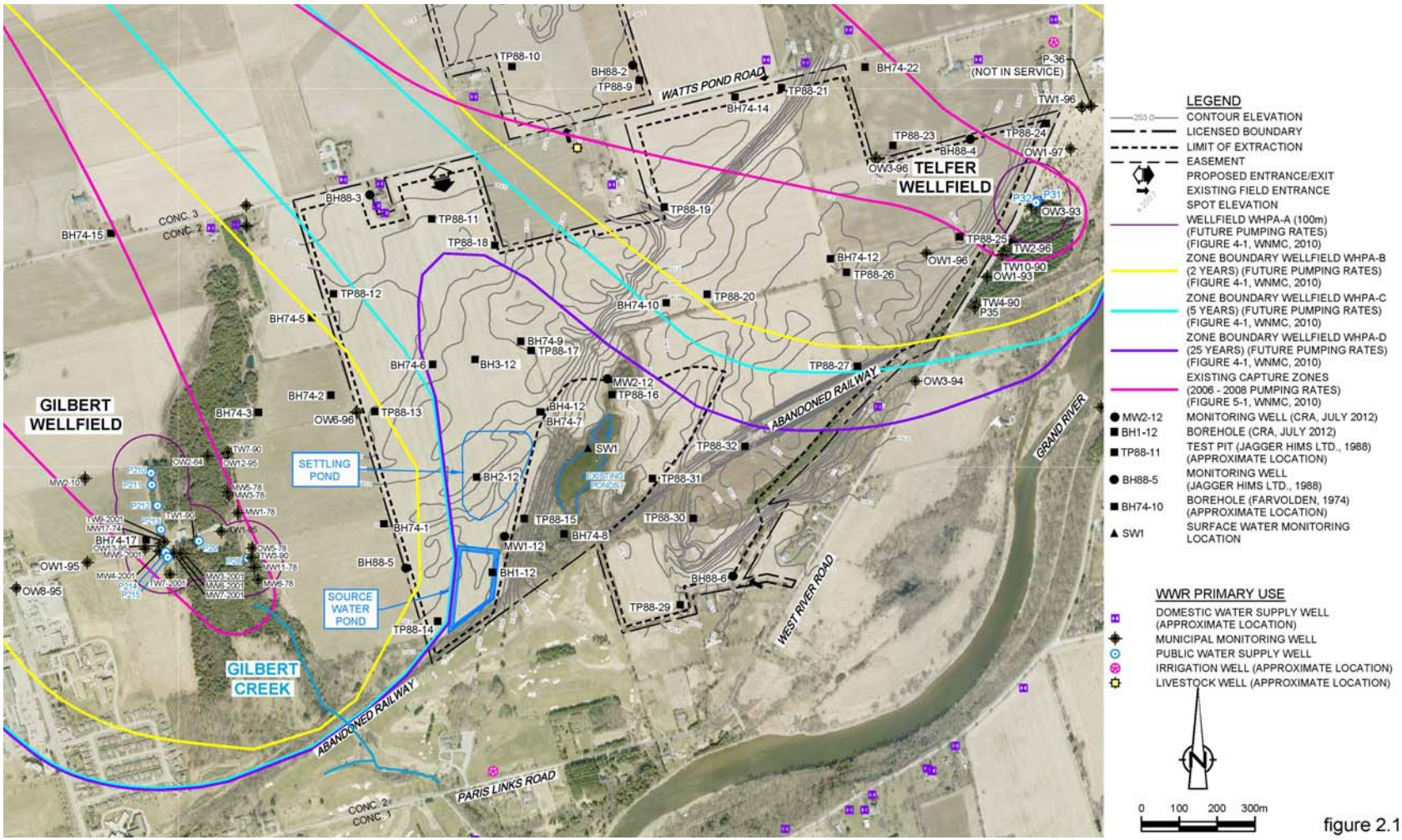

figure 2.1

- Application request reflects maximum amounts when Site is at maximum production
- Majority of water pumped is recycled. +/-160 L/min is actual amount of taking
- No water resource or water supply impacts anticipated

PTTW Application

- The design, technical review and proposed monitoring program in the PTTW application provides several levels of protection to the environment including water resources.
  - The location of the wash pond and settling pond is outside of the WHPA and far from current capture zones. Therefore there is no risk to the Gilbert or Telfer Wells.
  - The soil and water sampling did not identify any significant presence of pesticides
  - A monitoring program will provide ongoing checks during operations. Monitoring reports will be submitted to MOE, MNR and the County.
  - The County has its own monitoring program which includes wells on the Paris Pit lands.

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PTTW Application

- The MOE requested Dufferin Aggregates accelerate its plan to update the survey of private water supply conditions around the Site so it is complete at the time PTTW is issued
- Dufferin Aggregates and CRA completed this work in spring 2014 as outlined at March CAP meeting
- MOE has reviewed the results and is satisfied
- Findings on the well survey are kept confidential for privacy reasons but Dufferin Aggregates and CRA will consult with individual landowners, MOE, and County of Brant on an as-needed basis.

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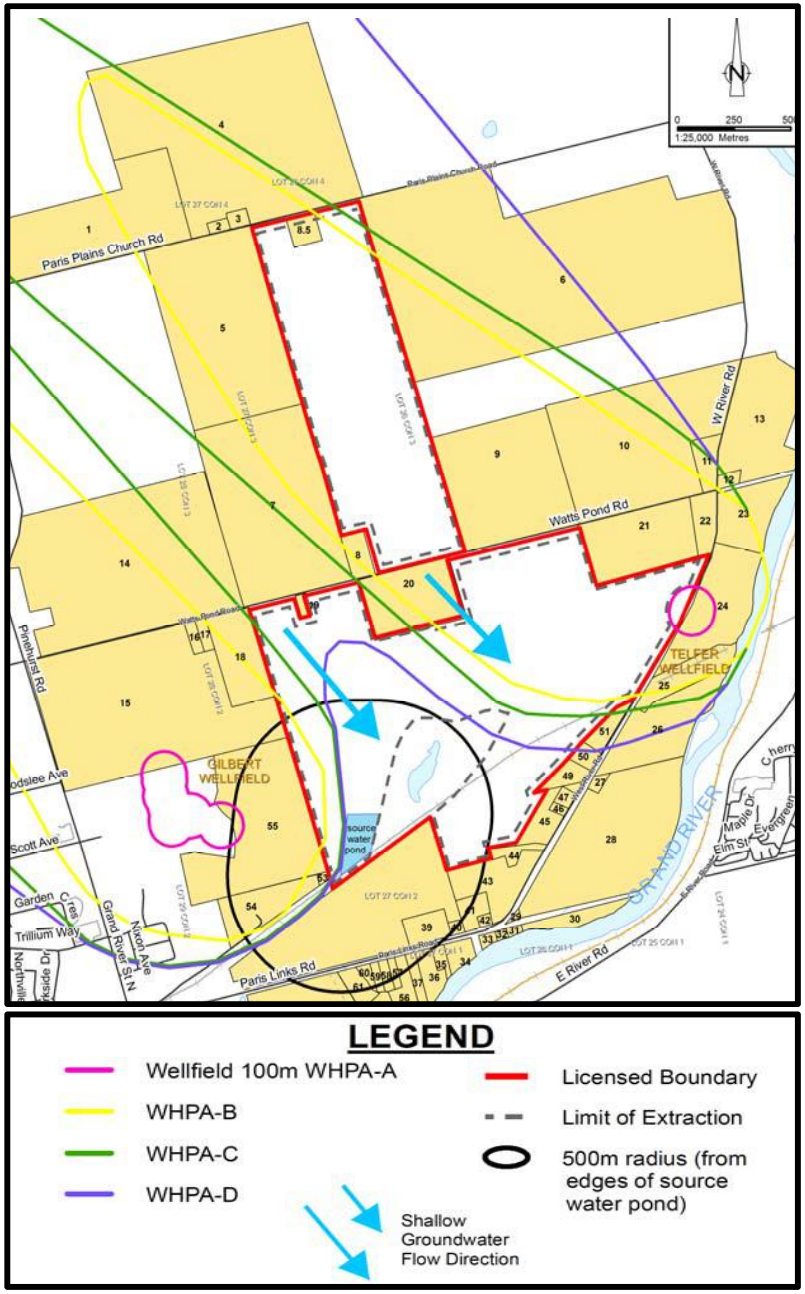
Paris Water Well Survey

Only 5 properties downgradient of the proposed source water pond with water wells. Of those:

- Only 2 wells used for potable water supply
- 1 property has no potable use
- 2 properties are on municipal supply and the well is not used for drinking water

Water Supply	No. of Properties
Well – sand and gravel	21
Well – limestone	5
Municipal supply	17
Municipal and well	7
No house/no resident	10
Did not Participate	1
TOTAL SURVEYED	61



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PTTW Application

- The PTTW Application has generated questions about the historical agricultural practices and the use of pesticides & herbicides on the Paris Pit lands.
  - As a result of washing aggregates, will the groundwater become contaminated with pesticides?
  - Will the fines removed from the aggregate by washing have pesticide concentrations that may cause contamination?
- The original PTTW application included an assessment of potential impacts caused by pesticides, including testing of soil and groundwater, and concluded that no impacts are expected.
- MOE asked Dufferin to expand the number of sample locations and depths.

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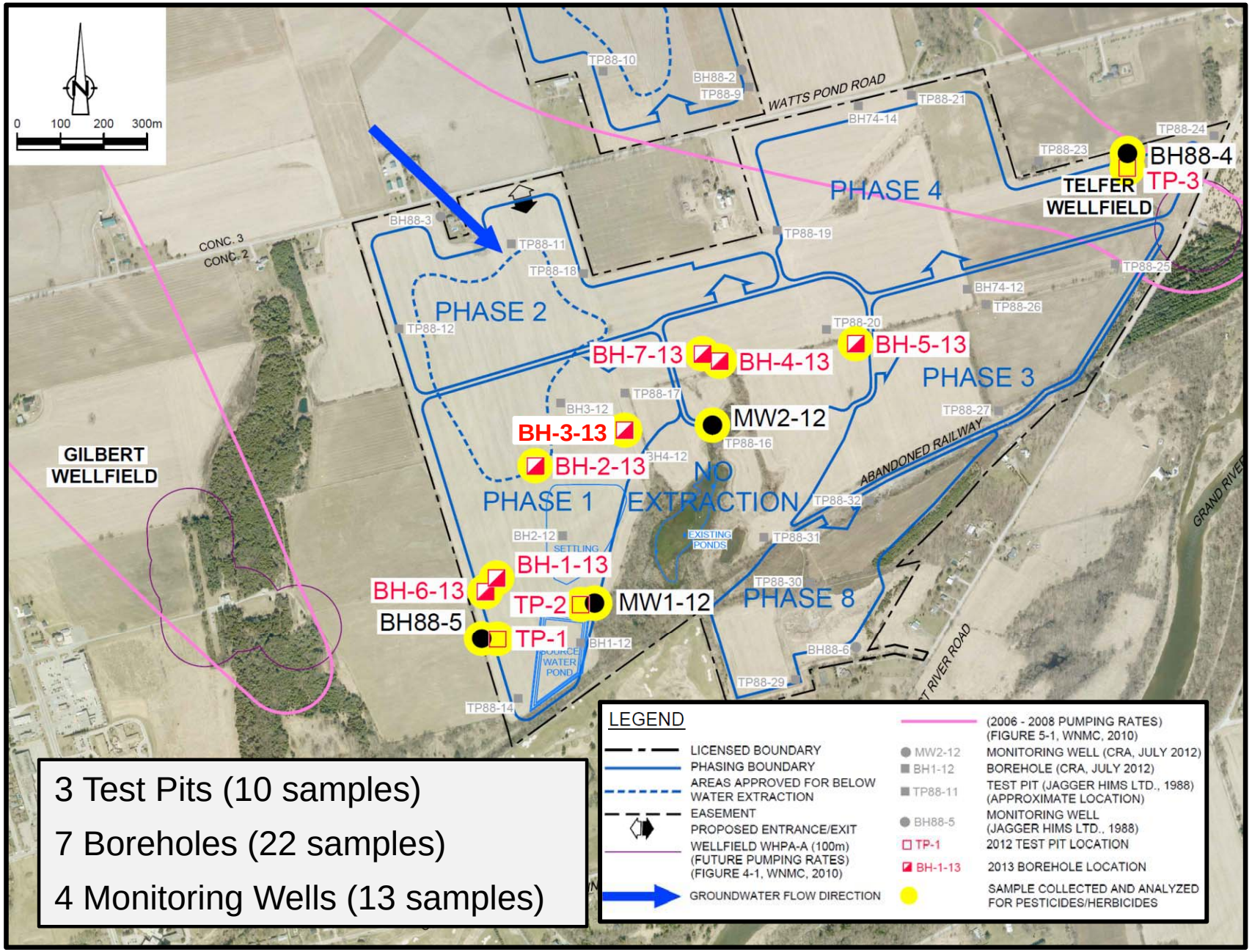
Extensive Additional Investigations Have Been Conducted at the request of MOE

- Five investigation events conducted between December 2012 and January 2014
  - 3 Test Pits (10 samples): TP-1 to TP-3
    - Upper (0 to 0.3 m bgs)
    - Intermediate (0.3 to 1 m bgs)
    - Lower (3 to 3.7 m bgs) soil samples collected
  - 7 Boreholes (22 samples): BH-1-13 to BH-7-13
    - Completed to the top of the water table (depths of 5.5 to 14 m bgs)
      - Upper (0 to 1.5 m overburden)
      - Intermediate (halfway)
      - Lower (1.5 m above water table) soil samples collected
  - 4 Monitoring Wells (13 groundwater samples):
    - MW1-12, MW2-12, BH88-5-II, BH88-4

Investigation Locations



3 Test Pits (10 samples)

7 Boreholes (22 samples)

4 Monitoring Wells (13 samples)

Soil Analytical Summary

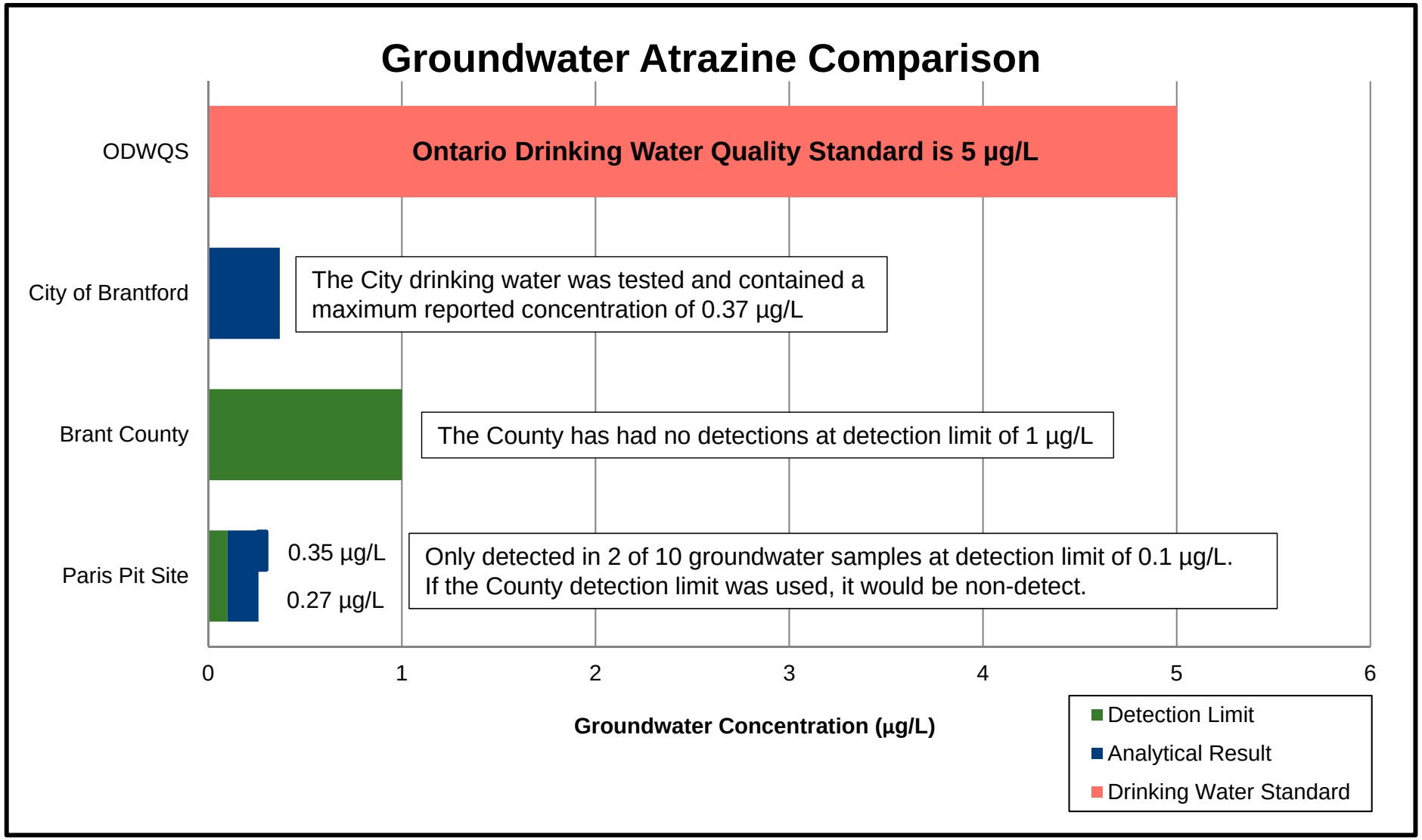
Approx. Depth (m bgs)	Atrazine Results	Atrazine #Samples	Glyphosate Results	Glyphosate #Samples
0 to 0.9	Non-Detect	6	Non-Detect to 0.005 mg/kg (1 Detection)[1] **(Detection Limit of 0.005 mg/kg)**	6
1 to 2.5	Non-Detect	7	Non-Detect	9
2.6 to 5.5	Non-Detect	8	Non-Detect to 0.0094 mg/kg (2 Detections)[1] **(Detection Limit of 0.005 mg/kg)**	11
5.6 to water table	Non-Detect	5	Non-Detect	6
	0 Detections in 26 Soil Samples		3 Non-Reproducible Detections in 32 Soil Samples	

Water table

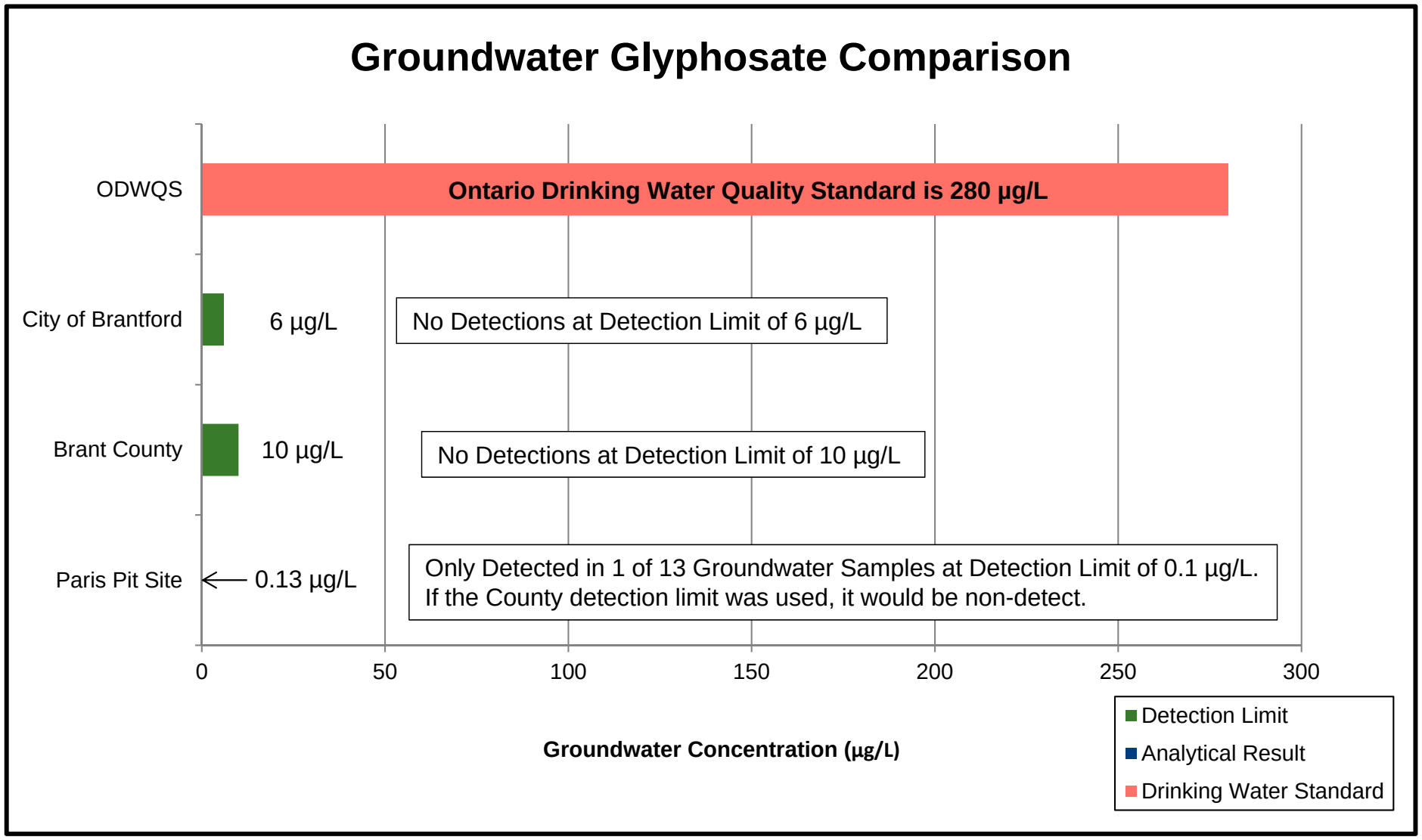
Soil Testing Conclusions

- Extensive testing was completed with thorough horizontal and vertical extent
- Analysis done to very low laboratory detection limits
- No atrazine detected in 26 soil samples
- Only trace level of glyphosate found in 3 of 32 samples. Samples were collected 5 days after glyphosate application on fields. Results were not repeated in follow-up verification sampling.
- Conservative (cautionary) analysis indicates there is no potential washing to result in higher concentrations in sediment (settling pond fines) that could then pose a risk to water quality.

Water Quality Testing



Water Quality Testing



Water Quality Testing Conclusions

- Ontario Drinking Water Quality Standards (ODWQSs) have been established by the Province as safe for long-term exposure.
- Laboratory testing by Dufferin Aggregates was completed to very stringent low detection limits. Detection limits were 2.5-10 times lower than County of Brant testing of Municipal water supply and 25-2,800 times lower than the ODWQS.
- Only one location exhibited any detection of Atrazine and this occurred at a level that was 14 to 18 times lower than ODWQS. The detections were at concentrations below the County of Brant testing limits – this means that the County analysis of these samples would have resulted in no detection.
- Only one detection of Glyphosate occurred and this was at a level that was more than 2,000 times below the ODWQS. This detection was 77 times lower than the County of Brant testing limit – this means that the County analysis of these samples would have resulted in no detection.
- Pesticide detections are demonstrated to be rare and to be at extremely low levels, far below the limits set out by the Province for safe drinking water.
- **Therefore, no water quality impacts are indicated or anticipated**.

County Water Experts Concur That Agricultural Chemicals Are Not Indicated to be a Risk

Mr. Ray Blackport & Ms. Clare Stewart of Stantec Consulting Ltd., March 14, 2014:

- ***"No impacts are anticipated at the Gilbert Well Field … associated with aggregate washing operations…"***
- ***"No impacts are anticipated at the Telfer Well Field … associated with aggregate washing operations…"***
- ***"Atrazine has been shown to bond tightly to soil particles … is considered to be a bound residue (Jablonowski, 2008) making it difficult to leach into water. Given the difficulty in breaking the bonds that form between the fine soil particles and atrazine, as well as similar pesticides, it is unlikely that the washing operation will dissolve the atrazine into the water…"***

Dr. Bryan Leece, Ph.D. of Stantec Consulting Ltd., March 14, 2014:

- ***"In summary, our review of the scientific literature cited by Mr. Greenacre finds that the information contained in these reports and from these sources, does not support the position that the proposed washing process will release agricultural chemicals into the wash water."***
- ***"…it is very unlikely that pesticide residues that may be bound to soil particles would be dissolved in the wash water and therefore, it is equally unlikely that this process represents a plausible transport pathway for these compounds to enter the aquifer."***

Dufferin subsequently reviewed findings with MOE and County/Stantec.

They concurred with conclusions that no water quality impacts are anticipated.

Dufferin Remains Responsible Following PTTW Issuance

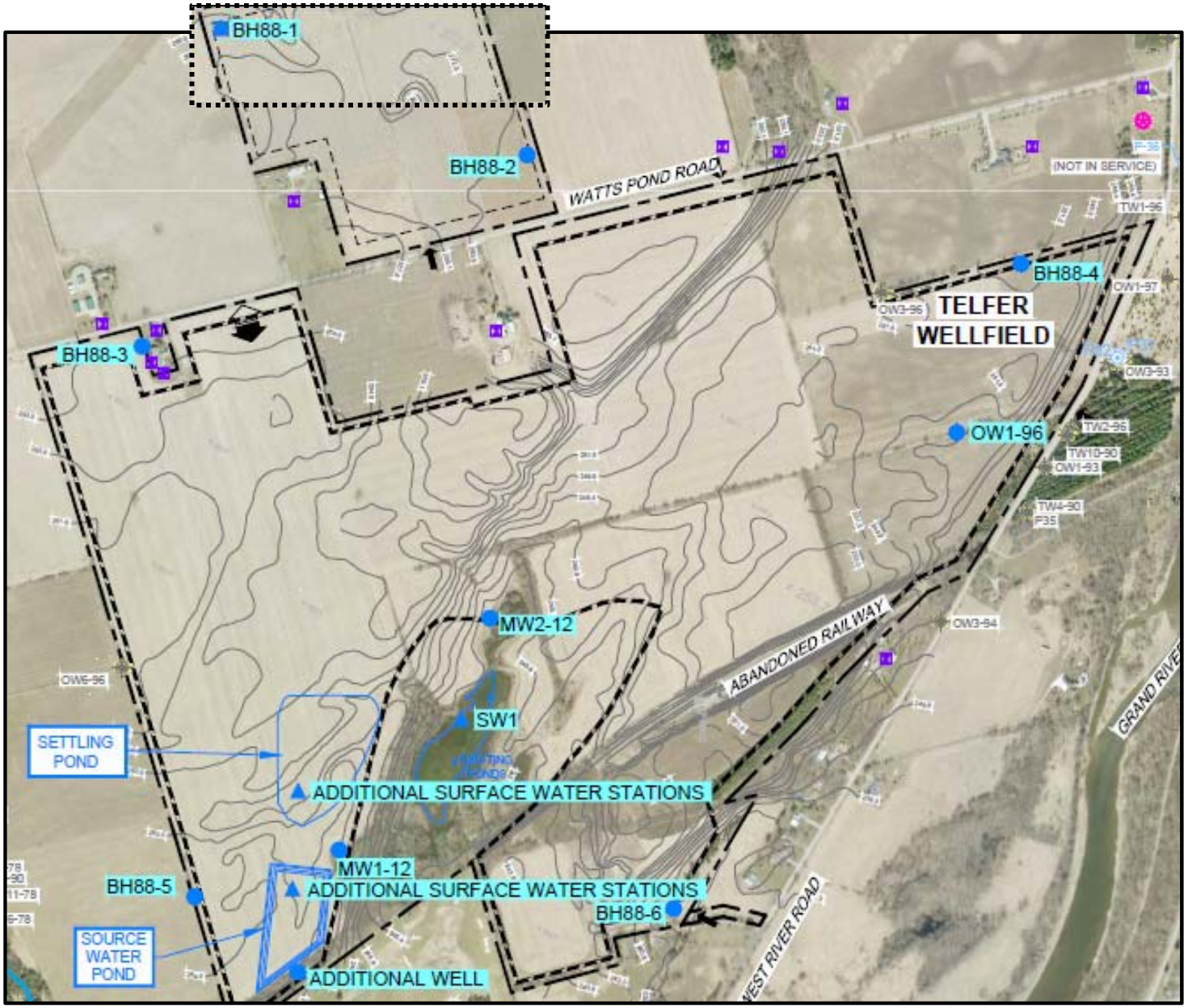
- Comprehensive monitoring program will be undertaken
- Monitoring will include water quantity and water quality, including pesticides
- Monitoring is designed to provide early warning of any unanticipated effects
- Results will be reported to MOE, County, and the public
- In the event any unanticipated results are indicated, Dufferin Aggregates will be responsible to ensure appropriate measures are implemented to maintain suitable water supply and water resource conditions.
- MOE has enforcement authority to require necessary actions

Long Term Monitoring Locations - Quantity

1. **Water Taking Flow**
   Frequency - daily
2. **Surface Water Levels**
   Locations – 4 ponds
   - Source Pond
   - Settling Pond
   - 2 Existing Pond

   Frequency
   - Minimum 3 seasonal events
   - 3 data loggers
3. **Groundwater Levels**
   Locations
   - 15 wells at 10 locations
   - Includes 1 new location

   Frequency
   - Minimum 3 seasonal events
   - 12 wells with loggers



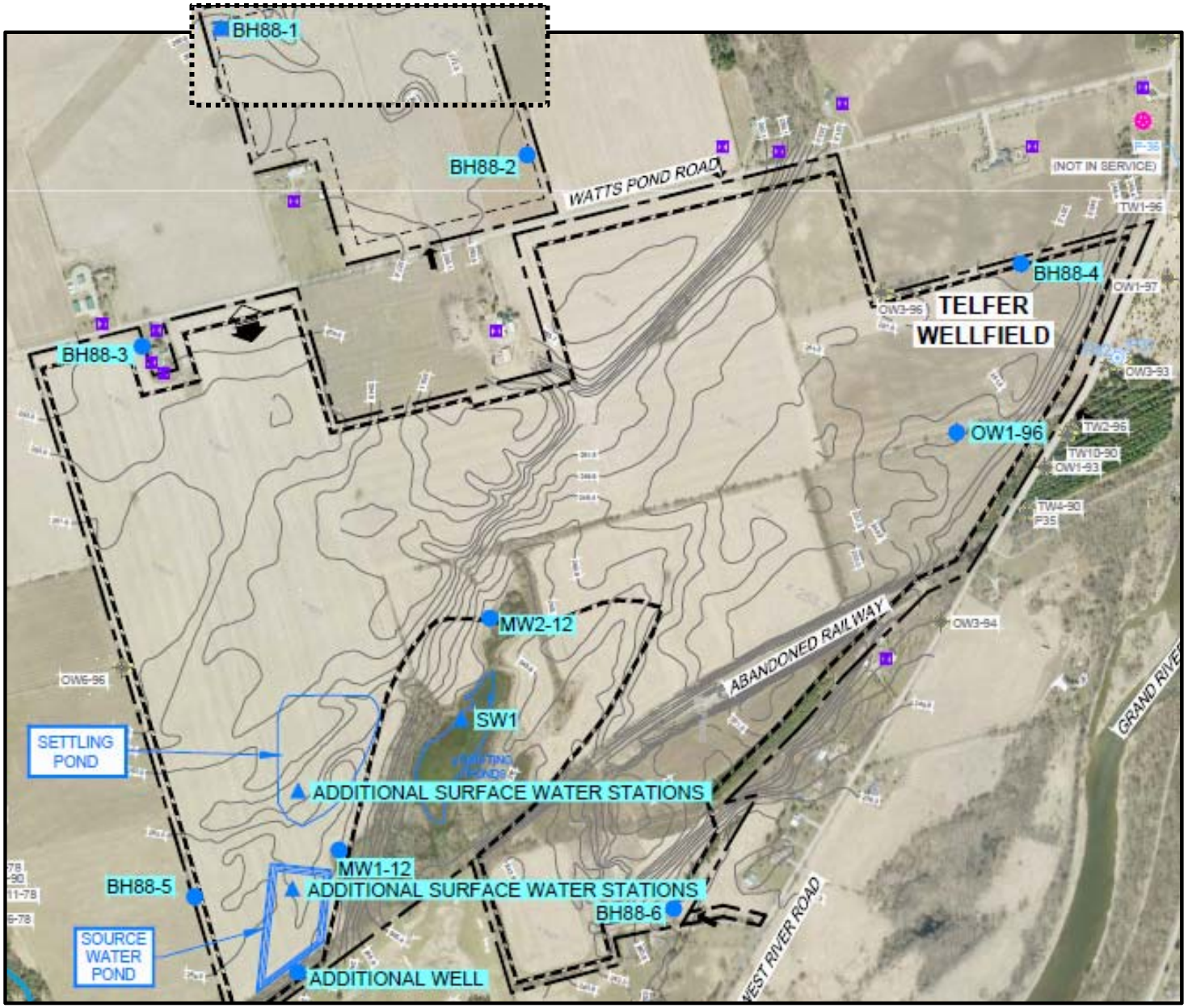
Long Term Monitoring Locations - Quality

1. **Surface Water**
   Locations - 3 ponds
   - Source Pond (pumped water)
   - Settling Pond overflow
   - Existing Pond

   Frequency - 3 times per year
   - Prior to wash operations
   - Mid-year operations
   - End of year operations

2. **Groundwater**
   Locations - Same as water level monitoring
   Frequency – 3 times per year

Pesticide Monitoring will be conducted at least annually



Conclusions

- Dufferin Aggregates has proactively designed the Site to protect water resources and diligently evaluated potential PTTW effects.
- It is clearly demonstrated that there is no buildup of pesticides in the subsurface and there will be no negative impacts to water resources.
- Municipal water supply wells and private water supply wells will not be impacted
- The PTTW application has been reviewed by technical experts from GRCA, MOE, and the County of Brant and they concur.
- Monitoring will be conducted during the life of operations.
- Dufferin Aggregates will remain responsible to address any unanticipated impacts should they occur.

Next Steps

- PTTW & ECA (isw) – MOE to make a decision on the applications
- Watts Pond Road design work will continue
- Entrance construction will begin in July-August of this year
- Next CAP meeting: Sept/Oct 2014
  - Possible Topics:
    - Site update after summer
    - CAP suggestions?

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