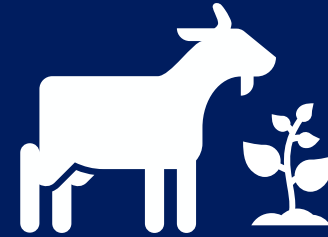




ECO-FRIENDLY VEGETATION MANAGEMENT USING GOATS



Muhammad Umer Khan, P.E., CFM, ENV SP
TRANSPORTATION & DRAINAGE OPERATIONS

June 1, 2023



PURPOSE

together we create a strong foundation
for Houston to thrive



5 TO THRIVE VALUES

respect | ownership | communication | integrity | teamwork

ECO-FRIENDLY VEGETATION MANAGEMENT BY USING GOATS



Project Background:

- Use of goats as a sustainable vegetation management for detention ponds and off-road channels.
- Concerns regrading degradation of stormwater quality.
- A pilot project was planned and completed at a 2-acre detention pond.

ECO-FRIENDLY VEGETATION MANAGEMENT BY USING GOATS



Why:

- ✓ Facilitates maintenance of assets where access is difficult and dangerous.
- ✓ Equipment limitations.
- ✓ Eco-friendly, green, and sustainable method.
- ✓ More economical than hiring a contractor (~\$2,500/acre vs. \$8,000/acre)
- ✓ Goats eat almost every plant, including most plants that are poisonous for humans.
- ✓ Neighborhoods love them as they are cute and make no loud noises.

Project Location:

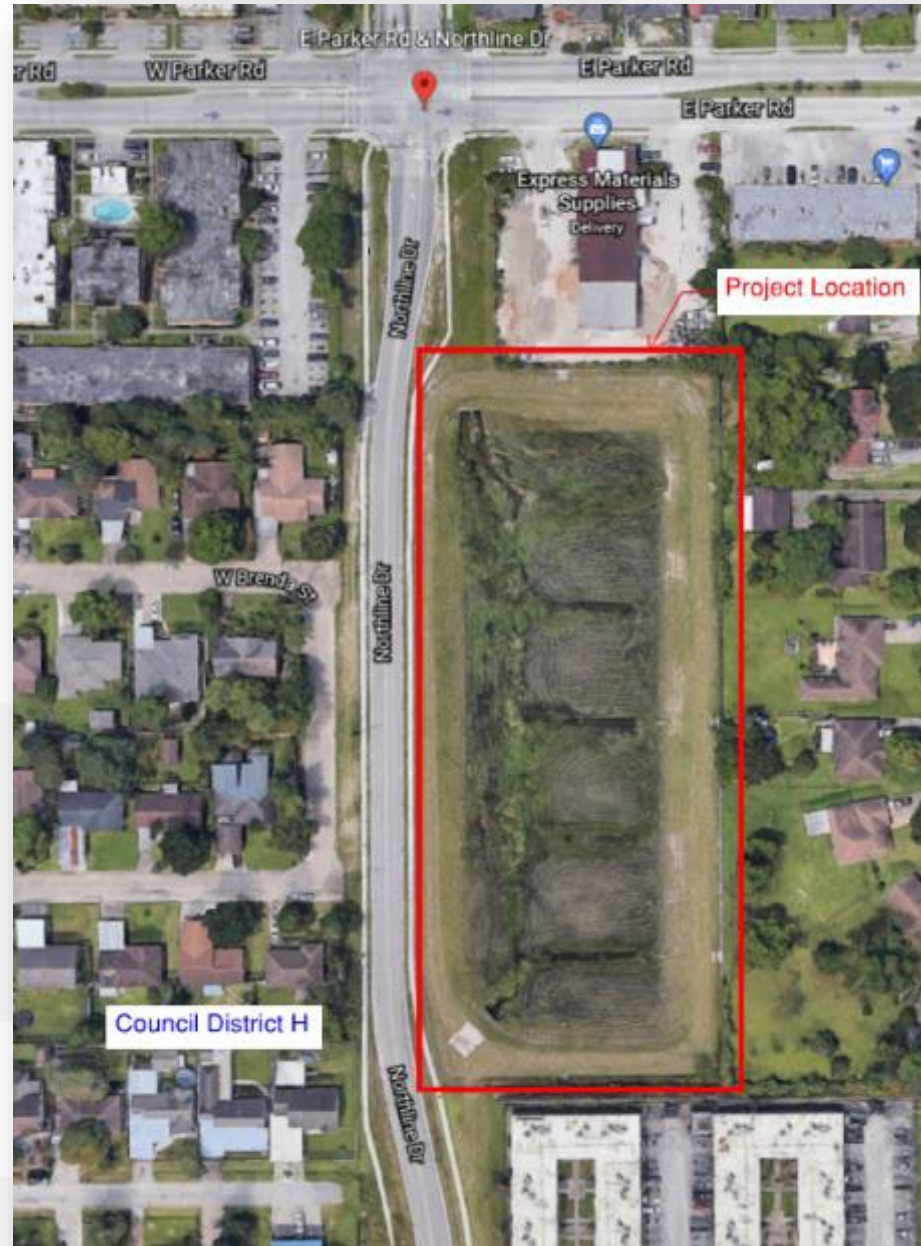
Detention Basin:
D0230-E-413W
SE Corner of Parker Rd &
Northline Dr
~2-acre detention basin

Environmental Consultant:

HALFF Associates



This Laboratory is NELAP (T104704213) accredited.



Our Vendor:

RETENTION
POND SQUAD



Rent-A-Ruminant
Franchise

Kind A. General Poultry LLC
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- Carolyn, Kyle and Terry Carr
- Location of Ranch: Rising Star, TX

2021 PROJECT TIMELINE

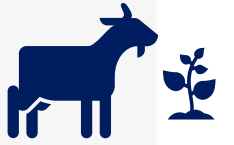


October – December 2021

- Initial stormwater sampling (pre-project) on dry day
- Rent-A-Ruminant bought 150 goats to the project site
- Initial stormwater sampling (pre-project) on a rainy day
- Project start date
- Media coverage
- Interim stormwater sampling on dry day
- Project completed
- De-mobilization of goats
- Final stormwater sampling (post-project) on dry day
- Final stormwater sampling (post-project) on a rainy day



PROJECT PROGRESS



Day 1



Day 5



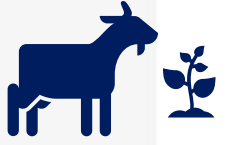
Day 10

BEFORE-AFTER PHOTOS



SAMPLING LOCATIONS



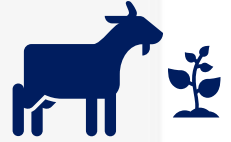


SAMPLING RESULTS

- Our environmental consultants found the addition of the goats to the project area did not appear to have a significant effect on the Total Coliform (TC) levels for the project area during the sampling period.
- Consultants consider the addition of goats from a purely vegetation control method a success.

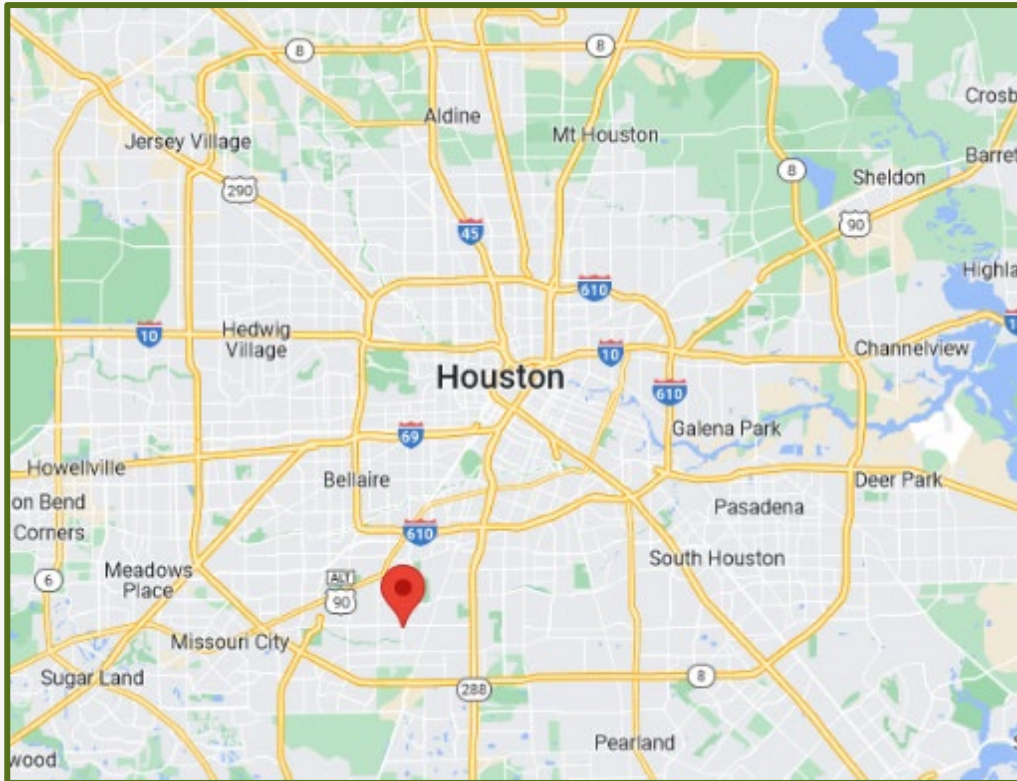


2023 PROJECT LOCATIONS



Project Locations:

Detention Basin: D0115-C-572K & D0160-C-572Q
West Orem @ Buffalo Speedway & West Orem
near Almeda Rd.



Environmental Consultant:

HALFF Associates



This Laboratory is NELAP (T104704213) accredited.

Vendor:

RETENTION
POND SQUAD



Rent-A-Ruminant
Franchise

Rent-A-Ruminant Franchise LLC ©
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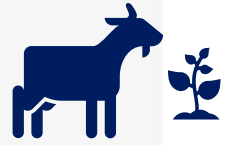
2023 PROJECT TIMELINE



February - April 2023

- Initial stormwater sampling (pre-project) on dry day and a wet day
- Initial stormwater sampling (pre-project) on a rainy day
- Rent-A-Ruminant brought 150 goats to the project site
- Project start date
- Vice Mayor Pro-Team Castex-Tatum visited the project site
- Project completed
- Demobilization of goats

PROJECT PROGRESS (WEST OREM @ ALMEDA RD)



Day 1

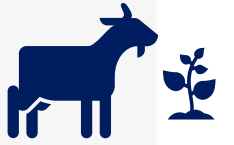


Day 3



Day 4

BEFORE-AFTER PHOTOS



PROJECT PROGRESS (WEST OREM @ BUFFALO SPEEDWAY)



Day 1



Day 3

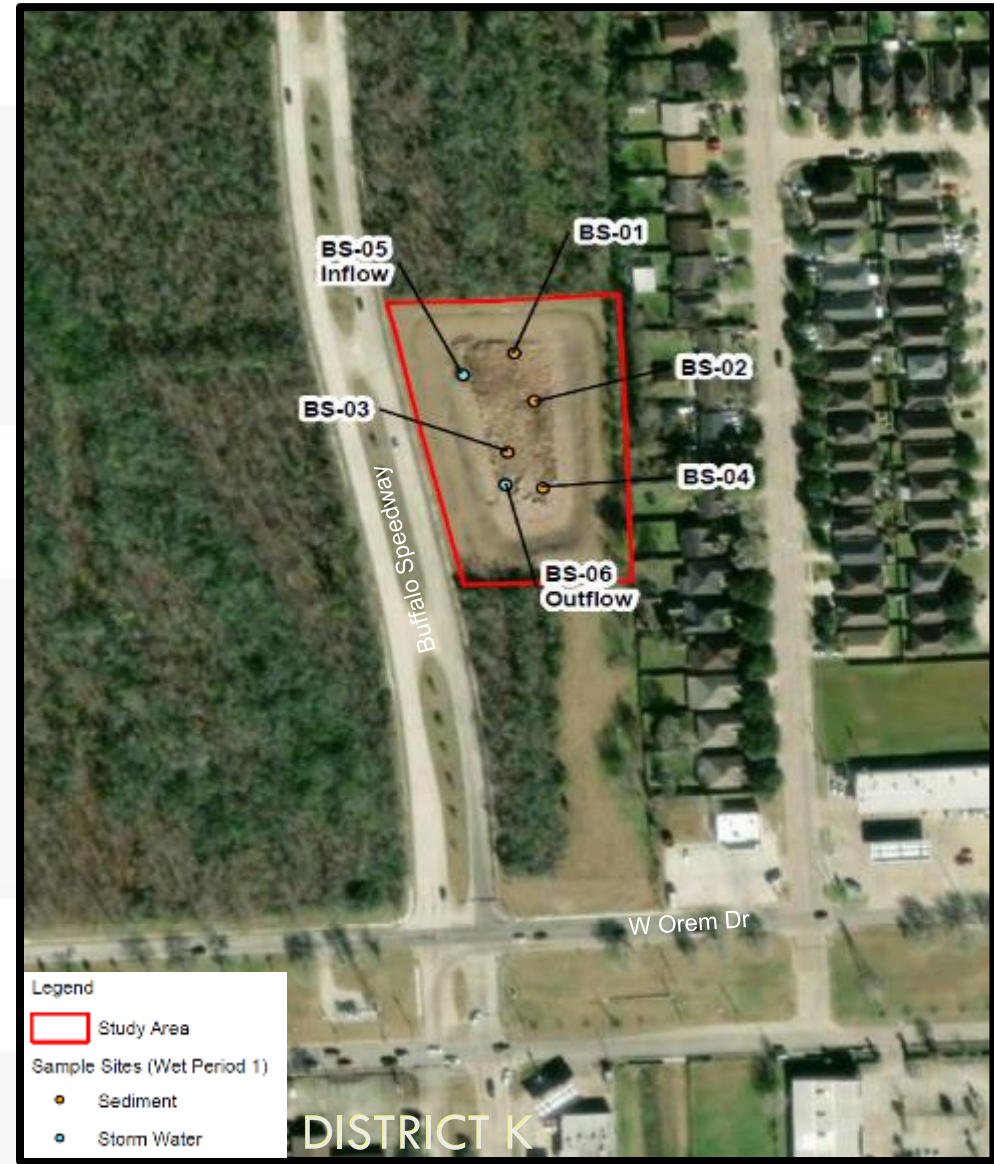


Day 4

PROJECT PROGRESS (W OREM @ BUFFALO SPEEDWAY)



SAMPLING LOCATIONS





SAMPLING RESULTS

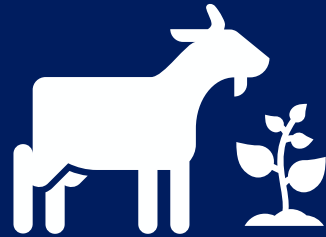
- Pending for both locations.

ULTIMATE GOAL

- ✓ Permanent goat use as part of Vegetation Management Practices.



THANK YOU!



QUESTIONS?

SWAT@HoustonTX.gov