



Stantec Consulting Services Inc.
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September 27, 2021

Mr. Steve Pierce, Director
Parks and Recreation
Town of Wilton
180 School Road, Wilton CT, CT 06897

**Reference: Wilton Sports Field Hydraulic Analysis at Tom Fujitani Field
Wilton, CT**

Dear Mr. Pierce:

Stantec Consulting Services is pleased to submit this scope and fee to provide professional engineering design services related to the above noted project. A watercourse runs to the west side of the Tom Fujitani Field and enters a quadruple 18" culvert which carries the watercourse below the grandstand. The watercourse remains piped heading south and ultimately discharges to a pond south of the field. Overtopping of the banks had been witnessed from recent historic large storm events (latest one on August 22nd estimated to be a 500-year storm in Wilton) which have led to significant sediment deposition on the new track surface and synthetic turf field. A hydraulic and hydrologic analysis of the area will be provided to evaluate existing conditions and outline potential solutions to remedy some of the flooding concerns in the area. A two-phase process is recommended for this project. Phase I encompasses gathering available information such as plans, reports and FEMA information in order to compile an existing conditions hydraulic model. Phase II involves updating the model for proposed potential improvements. If some of the improvements are accepted, a separate scope and fee will be provided to advance improvements to schematic design level. We anticipate providing the following specific services:

SCOPE OF SERVICES

Phase I – Investigation and Existing Conditions Modeling

A. Background Data Research:

This task will include obtaining FEMA backup data (if available), obtaining and reviewing existing reports and as-built plans for roadways/drainage/development in the watershed area (to be provided by the City). Additionally, Stantec will download available LIDAR/GIS data in order to create a base map in AutoCAD/GIS Software.

B. Site Review:

Stantec will conduct a site visit to review the anticipated extents of the watershed (preliminarily obtained from StreamStats). A thorough review of the entire brook length from Catalpa Road to the pond will be conducted. Condition of pipes, channel, crossings, etc.



**Reference: Wilton Sports Field Complex at Fujitani Field Hydraulic Analysis
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will be documented. This information will then be included in the existing conditions report which will be generated at the end of Phase I. A review of the extents of the survey that will be required for the river modeling will also be done in order to define the hydraulic survey required in the following task.

C. Hydraulic Survey:

Upon review of the site, a specific survey scope will be provided to the surveyor for the project. This will likely include multiple hydraulic sections of the brook, inverts of culverts, finished floor elevations at critical structures and detailed survey at bridges/culvert openings to define the hydraulic capacity of these structures. The detail of this survey will depend on the quality of the GIS/LIDAR data obtained during Task A above. A \$10,000 allowance is included for this task but only the work required will be billed.

D. Hydrologic Analysis:

This task involves:

- 1) Calculating the local CN based on an analysis of rainfall and runoff data following the guidance in the forthcoming update to the National Engineering Handbook, for which rainfall and runoff data is rank ordered to determine the average local CN value for a given storm magnitude (e.g., 100-year event). Runoff would be calculated from a hydrograph separation following the HYSEP program distributed by the USGS. Rainfall data would be retrieved from the local gage.
- 2) For the locally determined CN, determining the 2D model (spatially uniform) runoff magnitudes (indexed by return period, e.g., 100-year event) by integrating the SCS-CN runoff formula over the CN variability (based on the average value) and rainfall variability (taken from NOAA Atlas 14).
- 3) Calculate peak flows by using StreamStats or other available methods for comparison.
- 4) After flow calculation Stantec will determine which set of flows are appropriate for the hydraulic analysis.

E. Hydraulic Analysis – Existing Conditions:

A hydraulic model will be compiled from Catalpa Road to just south of School Road. This task involves:

- 1) Setting up a HEC-RAS 1D Model for the length of the watercourse from the north side of the synthetic turf field to the outfall from the pond.
- 2) Incorporating manning's 'n' values from field review, aeriels and other available information.
- 3) Incorporating major culvert crossings and channel parameters.
- 4) Applying the appropriate flow boundary condition at the outfall from the pond.



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- 5) Setting up a partial StormCAD model for key drainage pipes and structures connecting to the watercourse.

F. Existing Conditions Report:

This task will involve compiling all the information obtained in the above noted tasks and providing a report outlining the capacity of the watercourses and culverts in the reach including approximate limits of flooding for critical events. Storms from the 2- to 500-year will be reviewed. Detailed HEC-Ras data including profiles, cross-sections, etc. will be included. A summary of possible solutions to reduce flooding conditions will also be included.

Total Fee - Phase I \$33,000 (plus \$10,000 allowance for survey)

Phase II – Flood Mitigation Review – Proposed Conditions

A. Model update:

Stantec will update the model with improvements to the brook/floodplain such as: berms/short walls, sediment removal, modifications to culvert entrances/exits, channel widening, flood storage, etc. to evaluate the impact that these measures will have in reducing the flooding in the area. Four different improvement options are included. Additional improvement evaluations may require additional scope/fee.

B. Report Update:

A report will be provided outlining the evaluated options. A matrix will be developed showing the various options and the results from the proposed model modifications. The report will also include various floodplain maps showing the extents of the floodplain reduction. A order of magnitude opinion of probable cost will also be developed for selected improvements. Potential permit requirements will also be outlined in this report.

Since it is not known what options will be selected/feasible, it is recommended that design plans for selected alternatives be developed under a separate scope and fee to be presented after the Phase II report is completed. Work for Phase II will not begin until authorization is received after Phase I review.

Total Fee - Phase II \$20,000

Stantec Fee (Phase I, II) \$53,000 plus \$10,000 allowance for survey



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Exclusions/Clarifications:

- The modeling noted above will be done with HEC-RAS with partial modeling in StormCAD. Not all pipes/catch basins contributing to the watercourse will be included in the model, only key network components.
- Assumes no floodplain/floodway analysis is required
- Wetlands flagging/biological evaluation is not included.
- Structural design for walls/headwalls, etc. is not included.
- Formal sediment transport/geotechnical channel evaluations are excluded.

Direct expenses are included in the fees noted above.

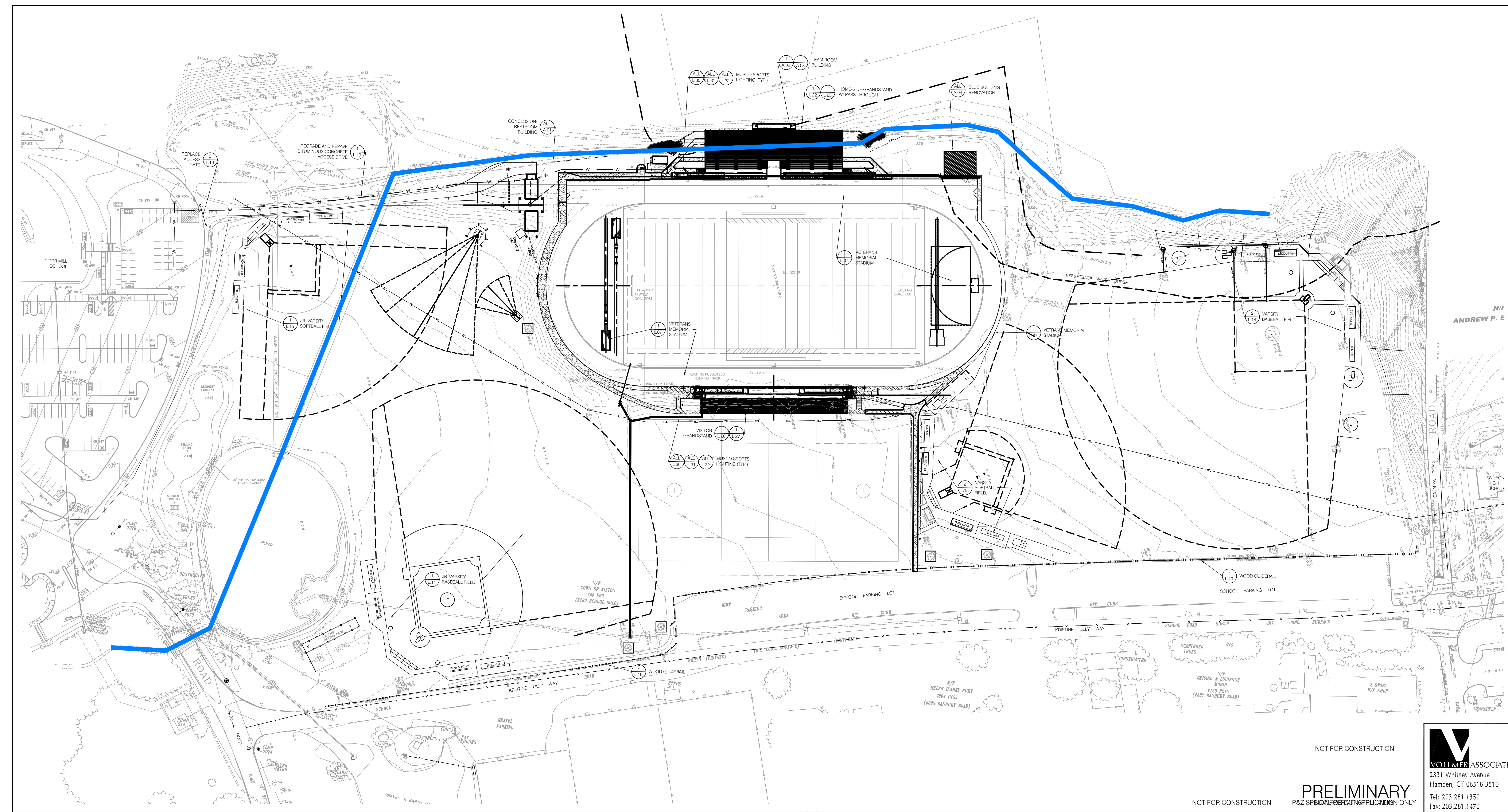
We appreciate this opportunity and look forward to working with the Town of Wilton. Should you have any questions or need additional information, please contact me. Thank you.

Very truly yours,

Antonio Di Camillo, PE
Associate

Phil Katz, PE
Associate

If in agreement with this scope and fee, we will prepare a formal agreement with Stantec's standard terms and conditions or coordinate formal terms and conditions/contract with the Town of Wilton.



DESCRIPTION OF WORK

The proposed site improvements for the South Fields and Veterans Memorial Stadium are as follows:

Veterans Memorial Stadium Renovations

- Concession, rest rooms, and storage
- Team rooms, rest rooms, and storage
- Grandstand w/ press box - removal
- Grandstand visitor - removal
- Grandstand w/ press box - 2000 seats
- Grandstand visitor - 1000 seats
- Lighting - 50 flood-candles - 50 fixtures
- Removal 4" chain-link fence and foundations
- 4'-0" chain-link fence
- Electrical service upgrade
- Electrical service to concession building
- Electrical service to team rooms building
- Scoreboard
- Public address system for press box
- Electrical for scoreboard and public address system
- Water service improvements
- Drinking fountain
- Sanitary sewer to new stadium buildings
- Grandstand building excavation
- 4" concrete sidewalk
- Stone dust sidewalk
- Pulverize asphalt access dr. and mix w/ base
- Running track renovation - asphalt and track surfacing and lines
- Running track renovation - track surface "blue coloring"
- Running track renovation - asphalt and track surfacing "D's"
- Running track renovation - track surface "D's blue coloring"
- Long jump curb
- Long jump sand
- Long jump drainage pipe
- Gravel base course - access drive
- 1 1/2" asphalt base course - access drive
- 1 1/2" asphalt top course - access drive
- Portable chain-link panels - black
- New gate - access drive

South Fields Renovations

- Jr. Varsity Baseball**
- Removal chain-link backstop and foundations
- Removal 6" chain-link fence and foundations
- Replace backstop
- 6'-0" chain-link fence
- 4'-0" chain-link fence
- Water service improvements
- Field irrigation
- 6" infield clay - strip and stockpile
- Topsoil - strip and stockpile (12" depth)
- Earthwork and grading (2" average depth)
- Topsoil - screen, amend and spread (12" depth)
- 6" infield clay - spread
- Lawn establishment - surface prep and sod
- Lawn renovation - irrigation work
- Bases, home plate and pitcher's plate
- New bullpens
- Bulpen home plate and pitcher's plate
- Jr. Varsity Softball**
- Removal chain-link backstop and foundations
- Removal 6" chain-link fence and foundations
- Field irrigation
- Backstop
- 6'-0" chain-link fence
- 4'-0" chain-link fence
- Water service improvements
- Lawn establishment - surface prep and sod
- Lawn renovation - irrigation work
- Bases, home plate and pitcher's plate
- New bullpens
- Bulpen home plate and pitcher's plate

South Fields Renovations

- Written Field**
- Water service improvements
- Field irrigation
- 4" conc. Sidewalk (memorial stadium access)
- Lawn renovation - irrigation work
- Varsity Baseball**
- Removal of concrete block and wood dugouts
- Removal chain-link backstop and foundations
- Concrete block / wood dugouts
- Backstop
- 6'-0" chain-link fence
- 4'-0" chain-link fence
- Modular block retaining wall
- Water service improvements
- Field irrigation
- Concrete block and prefabricated press box
- Electrical service to press box
- Lawn renovation after irrigation work
- Bleacher - 100 to 150 seats
- Bases, home plate and pitcher's plate
- New bullpens
- Bulpen home plate and pitcher's plate
- Varsity Softball**
- Removal of concrete block and wood dugouts
- Removal chain-link backstop and foundations
- Backstop
- 6'-0" chain-link fence
- 4'-0" chain-link fence
- Concrete block utility room and prefabricated press box
- Electrical service to press box
- Water service improvements
- Field irrigation
- Lawn renovation after irrigation work
- Bleacher - 50 to 60 seats
- Bases, home plate and pitcher's plate
- New bullpens
- Bulpen home plate and pitcher's plate
- Timber Guide Rail**
- Removal timber guide rail and foundations
- Timber guide rail

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION
PRELIMINARY
P&Z SPECIFIC DESIGN APPLICATION ONLY

VOLLMER ASSOCIATES LLP
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NO.	REVISIONS / DESCRIPTION	DATE

SOUTH FIELDS - VETERANS MEMORIAL STADIUM RENOVATIONS
WILTON ATHLETIC FIELDS COMPLEX, WILTON, CT

SOUTH FIELDS LAYOUT PLAN

DESIGNED BY	TAH	SCALE	1" = 40'	DATE	27 FEBRUARY 2006
DRAWN BY	ADC	CADD FILE	200470000DRAWINGS-05-06 LAYOUT.DWG		
CHECKED BY	CSA	JOB NO.	2004-700-00	SHEET	OF 45 SHEETS