JOSEPH L. THESIER, P.E.
RICK W. TAGUE, A.I.A.
MICHAEL J. HARRIS, A.I.A., LEED, A.P.
KRIS D. DIMMICK, P.E., PWLF
GERALD A. KOSTYK, P.L.S.
MARI L. CECIL, A.I.A., C.S.I., NCARB
MICKEY G. LEHMAN, P.E.
MATTHEW J. COOPER, P.E.
JASON S. JANTZI, A.I.A., C.S.I.
MARK B. KIMBALL, P.E., LEED GREEN ASSOCIATE
SHAWN M. TRAVERS, R.A., LEED GREEN ASSOCIATE
KEVIN E. LEWIS, A.I.A., NCARB
MICHAEL F. PECK, P.L.S.

December 21, 2015

Justin Wood, P.E.
City Engineer
Room 305, City Hall
245 Washington St.
Watertown, NY 13601

Re: Samaritan Medical Center
Women's and Children's Addition
BCA Project No. 2014-150

Dear Mr. Wood:

Enclosed herewith please find the submittal package for the above referenced project for consideration for the January 5, 2015 Planning Board meeting. The proposed project involves the construction of a Maternity Addition at Samaritan Medical Center with a reconstructed parking area. The proposed project is a three story addition with a footprint of approximately 4,550 square feet and 17,900 total square feet with 29 beds. The parking area will be reconfigured to include 52 parking spaces, including 5 ADA accessible spaces. This addition also includes a loading area and reconfigured loading pattern for deliveries by heavy tractor trailers. Drop off areas for patrons will be provided. An entrance to Sherman Street is proposed to be located at the existing curb cut. Other site features include exterior site lighting, sidewalks, stormwater water quality practices, re-aligned site utilities and site landscaping.

We trust that the application and associated documents are in order, and look forward to working with the City moving forward. Should you have any questions, please do not hesitate to contact me directly.

Respectfully submitted,

Michael Altieri, P.E.
Civil Engineer

Enclosures

Cc: Mr. Chris Bastien – Samaritan Medical Center
File

\\BCA2010A\Public\Projects\2014-000\2014-150.SMC PhaseIV\City Site Plan Review\1- Site Plan Application\Cover Letter.doc

327 MULLIN STREET
WATERTOWN, NY 13601
TEL. (315) 782-8130
FAX (315) 782-7192

WWW.THEBCGROUP.COM

CITY OF WATERTOWN
SITE PLAN APPLICATION PROCESS

The applicant is responsible for submitting a fully complete application and including all the required information.

****INCOMPLETE APPLICATIONS WILL NOT BE PROCESSED****

In order to expedite the Site Plan review process, all applicants are strongly encouraged to schedule a pre-application meeting with Planning & Engineering staff. Staff can be reached at (315) 785-7740.

In the interest of expediting site plan approvals, the City of Watertown wishes to advise you of the following procedures in applying for these referrals:

A. Fill out the Site Plan / Site Plan Waiver - Determination Flow Chart below:

1. Is the use a one, two, or three family dwelling?
   - ☐ YES (Site Plan Review is **not** required. You may apply directly for Building Permit.)
   - ☒ NO (Go to question 2)

2. Is your building or parking lot construction or expansion less than or equal to 400 sq. ft.?
   - ☐ YES (Site Plan Review is not required. You may apply directly for Building Permit.)
   - ☒ NO (Go to question 3)

3. Does your building or parking lot construction or expansion exceed 2500 sq. ft.?
   - ☒ YES (Site Plan Review required. Submit the Site Plan Application Form.)
   - ☐ NO (Go to question 4)

4. Is your proposed building the first on the lot?
   - ☐ YES (Site Plan Review required. Submit the Site Plan Application Form.)
   - ☒ NO (Go to question 5)

5. Does your project involve a change in the property boundaries?
   - ☐ YES (Site Plan Review required. Submit the Site Plan Application Form.)
   - ☒ NO (Go to question 6)

6. Does your building or parking lot construction or expansion change or impair the overall grading, circulation, drainage, utility services, and appearance and visual effect of the property?
   - ☒ YES (Site Plan Review required. Submit the Site Plan Application Form.)
   - ☐ NO (*Site Plan Waiver allowed. Submit the Site Plan Waiver Form.)

   * The City of Watertown Planning Board reserves the right to require Site Plan Review at its sole discretion.

B. **WAIVER OF SITE PLAN APPROVAL SUBMITTAL REQUIREMENTS****

1. **3 complete, collated sets of the site plan waiver application package** that includes the following documents:
   a. Cover letter that explains the proposal and includes a project description.
   b. Completed Site Plan Waiver Application Form.
   c. Full size copies of all required plans (24"x36"), including 1 signed original.
2. **8 complete, collated sets of the site plan waiver application package** that includes the following documents:
   a. Cover letter that explains the proposal and includes a project description.
   b. Completed Site Plan Waiver Application Form.
   c. Reduced size copies of all required plans (11"x17") if they are legible. (otherwise submit full size sets)
3. **An electronic (pdf) copy** of the entire site plan waiver application package to include the following:
   a. A single, combined **pdf** containing the cover letter and the site plan waiver application form.
   b. A single, combined **pdf** containing all of the plan sheets and drawings.
   c. The **pdf** may be submitted via email to planning@watertown-ny.gov or on a CD.

** Site Plan Approval of City Council may be waived by the City Planning Board at its sole discretion.

C. Address submittals to:

Justin Wood, P.E.
City Engineer
Room 305, City Hall
245 Washington Street
Watertown, NY 13601

D. A **$50.00** application fee must accompany the submittal.
A **$50.00** application fee must accompany each resubmittal. You will be notified by the Engineering Department if an application requires a resubmittal. Make checks payable to the City of Watertown.

E. All Site Plan Waiver submittals must be received by the City Engineer at least 14 calendar days prior to the next Planning Board Meeting. Failure to meet the submittal deadline will result in **not** making the agenda for the upcoming Planning Board Meeting. **THERE ARE NO EXCEPTIONS.** The City Planning Board meets on the first Tuesday of each month at 3:00 P.M. in the City Council Chambers on the 3rd Floor of City Hall.

F. 2016 Meeting Schedules:

CITY OF WATERTOWN PLANNING BOARD 2016 (1ST TUES. MONTH @ 3:00 PM)		CITY OF WATERTOWN CITY COUNCIL 2016 (1ST & 3RD MONDAY @ 7 PM)	JEFFERSON COUNTY PLANNING BOARD 2016 (LAST TUES. MONTH)	
MEETING DATE	DEADLINE	MEETING DATE	MEETING DATE	DEADLINE
Jan. 5	Dec. 22	Jan. 4, 19*	Jan. 26	Jan. 12
Feb. 2	Jan. 19	Feb. 1, 16*	Feb. 23	Feb. 9
March 1	Feb. 16	March 7, 21	March 29	March 15
April 5	March 22	Apr. 4, 18	April 26	April 12
May 3	April 19	May 2, 16	May 31	May 17
June 7	May 24	Jun. 6, 20	June 28	June 14
July 5	June 21	July 5*, 18	July 26	July 12
Aug. 2	July 19	Aug. 1, 15	Aug. 30	Aug. 16
Sept. 6	Aug. 23	Sept. 6*, 19	Sept. 27	Sept. 13
Oct. 4	Sept. 20	Oct. 3, 17	Oct. 25	Oct. 11
Nov. 1	Oct. 18	Nov. 7, 21	Nov. 29	Nov. 15
Dec. 6	Nov. 22	Dec. 5, 19	Dec. 27	Dec. 13

* = Meeting Date changed due to Holiday

CITY OF WATERTOWN
SITE PLAN WAIVER

1869

** Provide responses for all sections. INCOMPLETE APPLICATIONS WILL NOT BE PROCESSED. Failure to submit required information by the submittal deadline will result in **not** making the agenda for the upcoming Planning Board meeting.

PROPERTY LOCATION

Proposed Project Name: _____

Tax Parcel Number: _____

Property Address: _____

Existing Zoning Classification: _____

OWNER OF PROPERTY

Name: _____

Address: _____

_____

Telephone Number: _____

Fax Number: _____

APPLICANT

Name: _____

Address: _____

_____

Telephone Number: _____

Fax Number: _____

Email Address: _____

ENGINEER / ARCHITECT / LAND SURVEYOR

Name: _____

Address: _____

_____

Telephone Number: _____

Fax Number: _____

Email Address: _____

REQUIRED DRAWINGS:

** The following drawings with the listed information **ARE REQUIRED, NOT OPTIONAL.** If the required information is not included and/or addressed, the Site Plan Application will **not** be processed.

☐ **ELECTRONIC COPY OF ENTIRE SUBMISSION** (PDF preferred)

☐ **SITE PLAN SKETCH**

- ☐ Pertinent existing above ground features are shown and labeled including, but not limited to, buildings, parking spaces, driveways, sidewalks, streets, landscaping, etc.
- ☐ All proposed above ground features are shown and clearly labeled "proposed".
- ☐ Land use, zoning, & tax parcel number are shown.
- ☐ The Plan is adequately dimensioned including radii.
- ☐ All vehicular & pedestrian traffic circulation is shown.
- ☐ Proposed parking & loading spaces including ADA accessible spaces are shown and labeled.
- ☐ Sidewalks within the City Right-of-Way meet Public-Right-of-Way (PROWAG) standards.
- ☐ Refuse Enclosure Area (Dumpster), if applicable, is shown. Section 161-19.1 of the Zoning Ordinance states, "No refuse vehicle or refuse container shall be parked or placed within 15 feet of a party line without the written consent of the adjoining owner, if the owner occupies any part of the adjoining property".
- ☐ Snow storage area(s) are shown.
- ☐ The north arrow & graphic scale are shown.

☐ **GENERAL INFORMATION**

- ☐ Signage will not be approved as part of this submission. It requires a sign permit from the City Code Enforcement Bureau. See Section 310-52.2 of the Zoning Ordinance.
- ☐ Plans have been **collated** and properly folded.
- ☐ Signature Authorization form or letter signed by the owner is submitted allowing the applicant to apply on behalf of the owner if the applicant is not the property owner.
- ☐ Explanation for any item not checked in the Site Plan Waiver Checklist. (Attach separate sheet with explanation and comments)

SIGNATURE

I certify that the information provided above is true to the best of my knowledge.

Applicant's name (please print)_____

Applicant's Signature _____ Date: _____

CITY OF WATERTOWN
SITE PLAN APPLICATION PROCESS

A. SITE PLAN APPROVAL SUBMITTAL REQUIREMENTS*

1. **3 complete, collated sets of the site plan application package** that includes the following documents:
   a. Cover letter that explains the proposal and includes a project description.
   b. Completed Site Plan Application Form.
   c. Full size copies of all required plans (24"x36"), including 1 stamped & signed original.
   d. Engineering Report.

2. **13 complete, collated sets of the site plan application package** that includes the following documents:
   a. Cover letter that explains the proposal and includes a project description.
   b. Completed Site Plan Application Form.
   c. Reduced size copies of all required plans (11"x17") if they are legible. (otherwise submit full size sets)

3. **An electronic (pdf) copy** of the entire site plan application package to include the following:
   a. A single, combined **pdf** containing the cover letter, the site plan application form and the Engineering Report.
   b. A single, combined **pdf** containing all of the plan sheets and drawings.
   c. The **pdf** may be submitted via email to planning@watertown-ny.gov or on a CD.

Note: When Jefferson County Planning Board (239-M) Review is necessary, one additional full size set as described in # 1 above is required.

*Planning Board Recommendation and City Council Approval are required for Site Plans.

B. Address submittals to:

Justin Wood, P.E.
City Engineer
Room 305, City Hall
245 Washington Street
Watertown, NY 13601

C. A **$50.00** application fee must accompany the submittal.
A **$50.00** application fee must accompany each resubmittal. You will be notified by the Engineering Department if an application requires a resubmittal.
Make checks payable to the City of Watertown.

Date: 12-1-2015

D. All Site Plan submittals must be received by the City Engineer at least 14 calendar days prior to the next Planning Board Meeting; 21 calendar days if Jefferson County Planning Board action is necessary. Failure to meet the submittal deadline will result in **not** making the agenda for the upcoming Planning Board Meeting. **THERE ARE NO EXCEPTIONS.** The City Planning Board meets on the first Tuesday of each month at 3:00 P.M. in the City Council Chambers on the 3rd Floor of City Hall.

E. 2016 Meeting Schedules:

CITY OF WATERTOWN PLANNING BOARD 2016 (1ST TUES. MONTH @ 3:00 PM)		**CITY OF WATERTOWN CITY COUNCIL 2016 (1ST & 3RD MONDAY @ 7 PM)**	**JEFFERSON COUNTY PLANNING BOARD 2016 (LAST TUES. MONTH)**	
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Sept. 6	Aug. 23	Sept. 6*, 19	Sept. 27	Sept. 13
Oct. 4	Sept. 20	Oct. 3, 17	Oct. 25	Oct. 11
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Dec. 6	Nov. 22	Dec. 5, 19	Dec. 27	Dec. 13

* = Meeting Date changed due to Holiday

CITY OF WATERTOWN
SITE PLAN APPLICATION

** Provide responses for all sections. INCOMPLETE APPLICATIONS WILL NOT BE PROCESSED. Failure to submit required information by the submittal deadline will result in **not** making the agenda for the upcoming Planning Board meeting.

PROPERTY LOCATION

Proposed Project Name: SMC Women's and Children's Addition

Tax Parcel Number: 1402101

Property Address: 830 Washington Street, Watertown, NY 13601

Existing Zoning Classification: Health Services

OWNER OF PROPERTY

Name: Samaritan Medical Center

Address: 830 Washington Street
Watertown, NY 13601

Telephone Number: (315)782-6866

Fax Number: (315) 785-4292

APPLICANT

Name: Chris Bastien - Samaritan Medical Center

Address: 830 Washington Street
Watertown, NY 13601

Telephone Number: (315)782-6866

Fax Number: (315) 785-4292

Email Address: cbastien@shsny.com

ENGINEER/ARCHITECT/SURVEYOR

Name: Bernier, Carr and Associates

Address: 327 Mullin Street
Watertown, NY 13601

Telephone Number: (315) 782-8130

Fax Number: (315) 782-7192

Email Address: maltieri@thebcgroup.com

OPTIONAL MATERIALS:

☐ **PROVIDE AN ELECTRONIC (.DWG) COPY OF THE SITE PLAN WITH AS-BUILT REVISIONS. This will assist the City in keeping our GIS mapping up-to-date.**

REQUIRED MATERIALS:

** The following drawings with the listed information **ARE REQUIRED, NOT OPTIONAL**. If the required information is not included and/or addressed, the Site Plan Application will **not** be processed.

☒ **COMPLETED ENVIRONMENTAL ASSESSMENT FORM** (Contact us if you need help choosing between the Short EAF and the Full EAF). The Complete EAF is available online at: http://www.dec.ny.gov/permits/6191.html

☒ **ELECTRONIC COPY OF ENTIRE SUBMISSION** (PDF) A single, combined PDF of the entire application, including cover letter, plans, reports, and all submitted material.

☒ **BOUNDARY and TOPOGRAPHIC SURVEY**
(Depict existing features as of the date of the Site Plan Application. This Survey and Map must be performed and created by a Professional Land Surveyor licensed and currently registered to practice in the State of New York. This Survey and Map must be stamped and signed with an original seal and signature on at least one copy, the rest may be copies thereof.

- ☒ All elevations are National Geodetic Vertical Datum of 1929 (NGVD29).
- ☒ 1' contours are shown and labeled with appropriate spot elevations.
- ☒ All existing features on and within 50 feet of the subject property are shown and labeled.
- ☒ All existing utilities on and within 50 feet of the subject property are shown and labeled.
- ☒ All existing easements and/or right-of-ways are shown and labeled.
- ☒ Existing property lines (bearings and distances), margins, acreage, zoning, existing land use, reputed owner, adjacent reputed owners and tax parcel numbers are shown and labeled.
- ☒ The north arrow and graphic scale are shown.

☒ **DEMOLITION PLAN** (If Applicable)

☒ All existing features on and within 50 feet of the subject property are shown and labeled.

☒ All items to be removed are labeled in darker text.

☒ **SITE PLAN**

☒ Include a reference to the coordinate system used(NYS NAD83-CF preferred).

☒ All proposed above ground features are depicted and clearly labeled.

☒ All proposed features are clearly labeled "proposed".

☒ All proposed easements and right-of-ways are shown and labeled.

☒ Land use, zoning, and tax parcel number are shown.

☒ The Plan is adequately dimensioned including radii.

☒ The line work and text for all proposed features is shown darker than existing features.

☒ All vehicular and pedestrian traffic circulation is shown including a delivery or refuse vehicle entering and exiting the property.

☒ Proposed parking and loading spaces including ADA accessible spaces are shown and labeled.

☒ Sidewalks within the City Right-of-Way meet Public-Right-of-Way (PROWAG) standards.

☒ Refuse Enclosure Area (Dumpster), if applicable, is shown. Section 161-19.1 of the Zoning Ordinance states, "No refuse vehicle or refuse container shall be parked or placed within 15 feet of a party line without the written consent of the adjoining owner, if the owner occupies any part of the adjoining property".

☒ Proposed snow storage areas are shown on the plans.

☒ The north arrow and graphic scale are shown.

☒ **GRADING PLAN**

☒ All proposed below ground features including elevations and inverts are shown and labeled.

☒ All proposed above ground features are shown and labeled.

☒ The line work and text for all proposed features is shown darker than existing features.

☒ All proposed easements and right-of-ways are shown and labeled.

☒ 1' existing contours are shown dashed and labeled with appropriate spot elevations.

☒ 1' proposed contours are shown and labeled with appropriate spot elevations.

☒ All elevations are North American Vertical Datum of 1988 (NAVD88).

☒ Sediment and Erosion control are shown and labeled on the grading plan unless separate drawings have been provided as part of a Stormwater Pollution Prevention Plan (SWPPP).

☒ **UTILITY PLAN**

☒ All proposed above and below ground features are shown and labeled.

☒ All existing above and below ground utilities including sanitary, storm water, water, electric, gas, telephone, cable, fiber optic, etc. are shown and labeled.

☒ All proposed easements and right-of-ways are shown and labeled.

☒ The Plan is adequately dimensioned including radii.

☒ The line work and text for all proposed features is shown darker than existing features.

☒ The following note has been added to the drawings stating, "All water main and service work must be coordinated with the City of Watertown Water Department. The Water Department requirements supersede all other plans and specifications provided."

☒ **LANDSCAPING PLAN**

☒ All proposed above ground features are shown and labeled.

☒ All proposed trees, shrubs, and other plantings are shown and labeled.

☒ All proposed landscaping and text are shown darker than existing features.

☒ All proposed landscaping is clearly depicted, labeled and keyed to a plant schedule that includes the scientific name, common name, size, quantity, etc.

☒ For additional landscaping requirements where nonresidential districts and land uses abut land in any residential district, please refer to Section 310-59, Landscaping of the City's Zoning Ordinance.

☒ **Site Plan complies with and meets acceptable guidelines set forth in Appendix A - Landscaping and Buffer Zone Guidelines (August 7, 2007).**

☒ **PHOTOMETRIC PLAN** (If Applicable)

☒ All proposed above ground features are shown.

☒ Photometric spot elevations or labeled photometric contours of the property are clearly depicted. Light spillage across all property lines shall not exceed 0.5 foot-candles.

☒ **CONSTRUCTION DETAILS and NOTES**

☒ All details and notes necessary to adequately complete the project including, but not limited to, landscaping, curbing, catch basins, manholes, water line, pavement, sidewalks, trench, lighting, trash enclosure, etc. are provided.

☒ Maintenance and protection and traffic plans and notes for all required work within City streets including driveways, water laterals, sanitary laterals, storm connections, etc. are provided.

☒ The following note must be added to the drawings stating:
"All work to be performed within the City of Watertown margin will require sign-off from a Professional Engineer, licensed and currently registered to practice in the State of New York, that the work was built according to the approved site plan and applicable City of Watertown standards. Compaction testing will be required for all work to be performed within the City of Watertown margin and must be submitted to the City of Watertown Codes Department."

☒ **PRELIMINARY ARCHITECTUAL PLANS** (If Applicable)

☒ Floor plan drawings, including finished floor elevations, for all buildings to be constructed are provided.

☒ Exterior elevations including exterior materials and colors for all buildings to be constructed are provided.

☒ Roof outline depicting shape, slope and direction is provided.

☒ **ENGINEERING REPORT**

** **The engineering report at a minimum includes the following:**

☒ Project location

☒ Project description

☒ Existing and proposed sanitary sewer flows and summary

☒ Water flows and pressure

☒ Storm Water Pre and Post Construction calculations and summary

☒ Traffic impacts

☒ Lighting summary

☒ Landscaping summary

☒ **GENERAL INFORMATION**

☒ ALL ITEMS ARE STAMPED AND SIGNED WITH AN ORIGINAL SIGNATURE BY A PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR SURVEYOR LICENSED AND CURRENTLY REGISTERED TO PRACTICE IN THE STATE OF NEW YORK.

☐ If required, a copy of the Stormwater Pollution Prevention Plan (SWPPP) submitted to the NYSDEC will also be sent to the City of Watertown Engineering Department.

☐ ** If required, a copy of all submittals sent to the New York State Department of Environmental Conservation (NYSDEC) for the sanitary sewer extension permit will also be sent to the City of Watertown Engineering Department.

☐ ** If required, a copy of all submittals sent to the New York State Department of Health (NYSDOH) will also be sent to the City of Watertown Engineering Department.

** When NYSDEC or NYSDOH permitting is required, the property owner/applicant shall retain a licensed Professional Engineer to perform inspections of the proposed utility work and to certify the completed works were constructed in substantial conformance with the approved plans and specifications.

☒ Signage will not be approved as part of this submission. It requires a sign permit from the City Code Enforcement Bureau. See Section 310-52.2 of the Zoning Ordinance.

☒ Plans have been collated and properly folded.

☐ If an applicant proposes a site plan with multiple buildings and any of those buildings front on a private drive, the City Council will name the private drive by resolution and the building(s) will be given an address number on that private drive by City staff. The applicant may propose a name for the private drive for the City Council's consideration.

Proposed Street Name: _____

☒ For non-residential uses, the proposed Hours of Operation shall be indicated.

☒ Signature Authorization form or letter signed by the owner is submitted allowing the applicant to apply on behalf of the owner if the applicant is not the property owner.

☐ Explanation for any item not checked in the Site Plan Checklist.

_____

_____

_____

_____

_____

Short Environmental Assessment Form
Part 1 - Project Information

Instructions for Completing

Part 1 - Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 - Project and Sponsor Information

Samaritan Medical Center

Name of Action or Project:

Women's and Children's Addition

Project Location (describe, and attach a location map):

830 Washington Street, Watertown, New York 13601

Brief Description of Proposed Action:

The proposed project will be a Maternity Addition with a reconstructed parking area. The proposed project is a three story addition with a footprint of approximately 4,550 square feet and 17,900 total square feet with 29 beds. The parking area will be reconfigured to include 52 parking spaces, including 5 ADA accessible spaces. This addition also includes a loading area and reconfigured loading pattern for deliveries by heavy tractor trailers. Drop off areas for patrons will be provided. An entrance to Sherman Street is proposed to be located at the existing curb cut. Other site features include exterior site lighting, sidewalks, stormwater water quality practices, re-aligned site utilities and site landscaping.

Name of Applicant or Sponsor:	Telephone: (315) 782-6866
Chris Bastien - Samaritan Medical Center	E-Mail: cbastien@shsny.com

Address:

830 Washington Street

City/PO:	State:	Zip Code:
Watertown	New York	13601

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other governmental Agency? If Yes, list agency(s) name and permit or approval: NYS DOH	☐	☑

3.a. Total acreage of the site of the proposed action? 0.90 acres

b. Total acreage to be physically disturbed? 0.90 acres

c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 15.10 acres

4. Check all land uses that occur on, adjoining and near the proposed action.

☑ Urban ☐ Rural (non-agriculture) ☐ Industrial ☑ Commercial ☑ Residential (suburban)

☐ Forest ☐ Agriculture ☐ Aquatic ☑ Other (specify): Hospital Services

☐ Parkland

	NO	YES	N/A
5. Is the proposed action,			
a. A permitted use under the zoning regulations?	☐	☑	☐
b. Consistent with the adopted comprehensive plan?	☐	☑	☐
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	NO ☐	YES ☑	
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area? If Yes, identify: _____	NO ☑	YES ☐	
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	NO ☑	YES ☐	
b. Are public transportation service(s) available at or near the site of the proposed action?	☑	☐	
c. Are any pedestrian accommodations or bicycle routes available on or near site of the proposed action?	☐	☑	
9. Does the proposed action meet or exceed the state energy code requirements? If the proposed action will exceed requirements, describe design features and technologies: _____	NO ☐	YES ☑	
10. Will the proposed action connect to an existing public/private water supply? If No, describe method for providing potable water: _____	NO ☐	YES ☑	
11. Will the proposed action connect to existing wastewater utilities? If No, describe method for providing wastewater treatment: _____	NO ☐	YES ☑	
12. a. Does the site contain a structure that is listed on either the State or National Register of Historic Places?	NO ☑	YES ☐	
b. Is the proposed action located in an archeological sensitive area?	☑	☐	
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	NO ☑	YES ☐	
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody? If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____	☑	☐	

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☐ Shoreline ☐ Forest ☐ Agricultural/grasslands ☐ Early mid-successional
☐ Wetland ☑ Urban ☑ Suburban

15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	NO ☑	YES ☐
16. Is the project site located in the 100 year flood plain?	NO ☑	YES ☐
17. Will the proposed action create storm water discharge, either from point or non-point sources? If Yes,	NO ☐	YES ☑
a. Will storm water discharges flow to adjacent properties? ☑ NO ☐ YES		
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)? If Yes, briefly describe: ☐ NO ☑ YES		

Stormwater runoff is directed to the City of Watertown Municipal Storm Sewer system.

	NO	YES
18. Does the proposed action include construction or other activities that result in the impoundment of water or other liquids (e.g. retention pond, waste lagoon, dam)? If Yes, explain purpose and size: _____	☑	☐
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility? If Yes, describe: _____	☑	☐
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste? If Yes, describe: _____	☑	☐

I AFFIRM THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor name: Chris Bastien Date: 12-21-15

Signature: _____

PRINT FORM

Agency Use Only [If applicable]

Project:

Date:

Short Environmental Assessment Form
Part 2 - Impact Assessment

Part 2 is to be completed by the Lead Agency.
Answer all of the following questions in Part 2 using the information contained in Part 1 and other materials submitted by the project sponsor or otherwise available to the reviewer. When answering the questions the reviewer should be guided by the concept "Have my responses been reasonable considering the scale and context of the proposed action?"

	No, or small impact may occur	Moderate to large impact may occur
1. Will the proposed action create a material conflict with an adopted land use plan or zoning regulations?	☐	☐
2. Will the proposed action result in a change in the use or intensity of use of land?	☐	☐
3. Will the proposed action impair the character or quality of the existing community?	☐	☐
4. Will the proposed action have an impact on the environmental characteristics that caused the establishment of a Critical Environmental Area (CEA)?	☐	☐
5. Will the proposed action result in an adverse change in the existing level of traffic or affect existing infrastructure for mass transit, biking or walkway?	☐	☐
6. Will the proposed action cause an increase in the use of energy and it fails to incorporate reasonably available energy conservation or renewable energy opportunities?	☐	☐
7. Will the proposed action impact existing: a. public / private water supplies?	☐	☐
b. public / private wastewater treatment utilities?	☐	☐
8. Will the proposed action impair the character or quality of important historic, archaeological, architectural or aesthetic resources?	☐	☐
9. Will the proposed action result in an adverse change to natural resources (e.g., wetlands, waterbodies, groundwater, air quality, flora and fauna)?	☐	☐
10. Will the proposed action result in an increase in the potential for erosion, flooding or drainage problems?	☐	☐
11. Will the proposed action create a hazard to environmental resources or human health?	☐	☐

PRINT FORM

Agency Use Only [If applicable]

Project:	
Date:	

Short Environmental Assessment Form
Part 3 Determination of Significance

For every question in Part 2 that was answered "moderate to large impact may occur", or if there is a need to explain why a particular element of the proposed action may or will not result in a significant adverse environmental impact, please complete Part 3. Part 3 should, in sufficient detail, identify the impact, including any measures or design elements that have been included by the project sponsor to avoid or reduce impacts. Part 3 should also explain how the lead agency determined that the impact may or will not be significant. Each potential impact should be assessed considering its setting, probability of occurring, duration, irreversibility, geographic scope and magnitude. Also consider the potential for short-term, long-term and cumulative impacts.

☐ Check this box if you have determined, based on the information and analysis above, and any supporting documentation, that the proposed action may result in one or more potentially large or significant adverse impacts and an environmental impact statement is required.

☐ Check this box if you have determined, based on the information and analysis above, and any supporting documentation, that the proposed action will not result in any significant adverse environmental impacts.

Name of Lead Agency	Date
Print or Type Name of Responsible Officer in Lead Agency	Title of Responsible Officer
Signature of Responsible Officer in Lead Agency	Signature of Preparer (if different from Responsible Officer)

PRINT FORM

PHASE IV: RENOVATIONS & ADDITION PROJECT
MATERNITY, PEDIATRICS, IMHU, and SUPPORT SERVICES

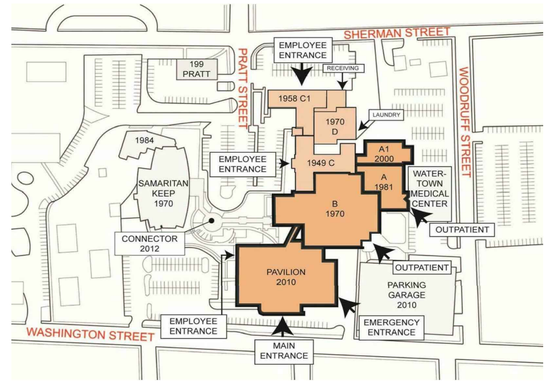
SAMARITAN MEDICAL CENTER
830 WASHINGTON ST, WATERTOWN, NY

Bernier, Carr & Associates, Engineers,
Architects and Land Surveyors, P.C.
327 Mullin Street, Watertown, New York 13601
Tel 315.782.8130 Fax 315.782.7192

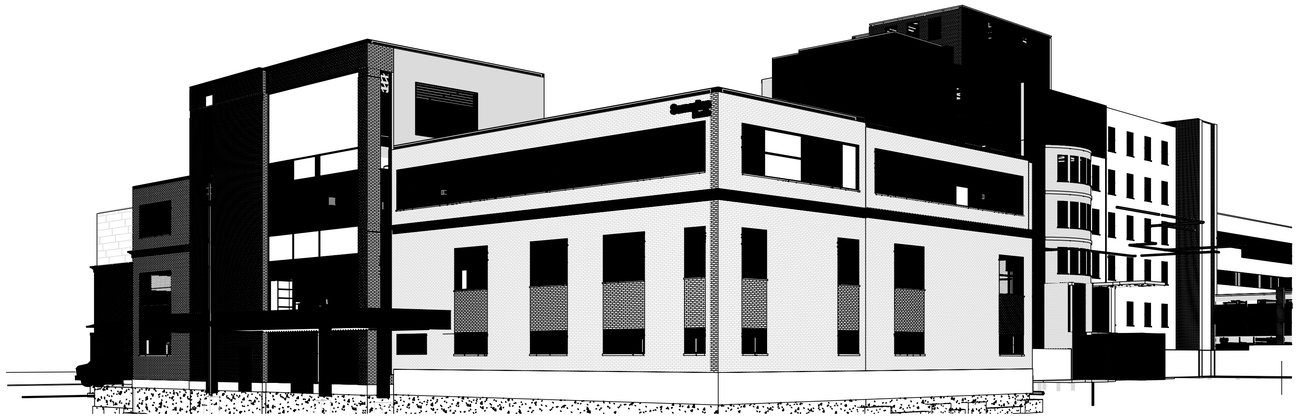
HOLT Architects, P.C.
Architects, Planners, and Interior Designers
217 North Aurora Street, Ithaca New York 14850
Tel 607.273.7600 Fax 607.273.0475

JADE STONE ENGINEERING,PLLC
mechanical. electrical. plumbing.
23791 Route 12, Watertown, New York 13601
Tel 315.836.4062

UFPE Upstate Fire Protection Engineering, PLLC
70 Inglesid Lane, Liverpool, New York 13090
Tel 315.933.6566



EXISTING CAMPUS PLAN



ENTRANCE TO WOMEN'S AND CHILDREN'S CENTER

12/21/2015 - CITY OF WATERTOWN PLANNING BOARD SITE PLAN SUBMISSION

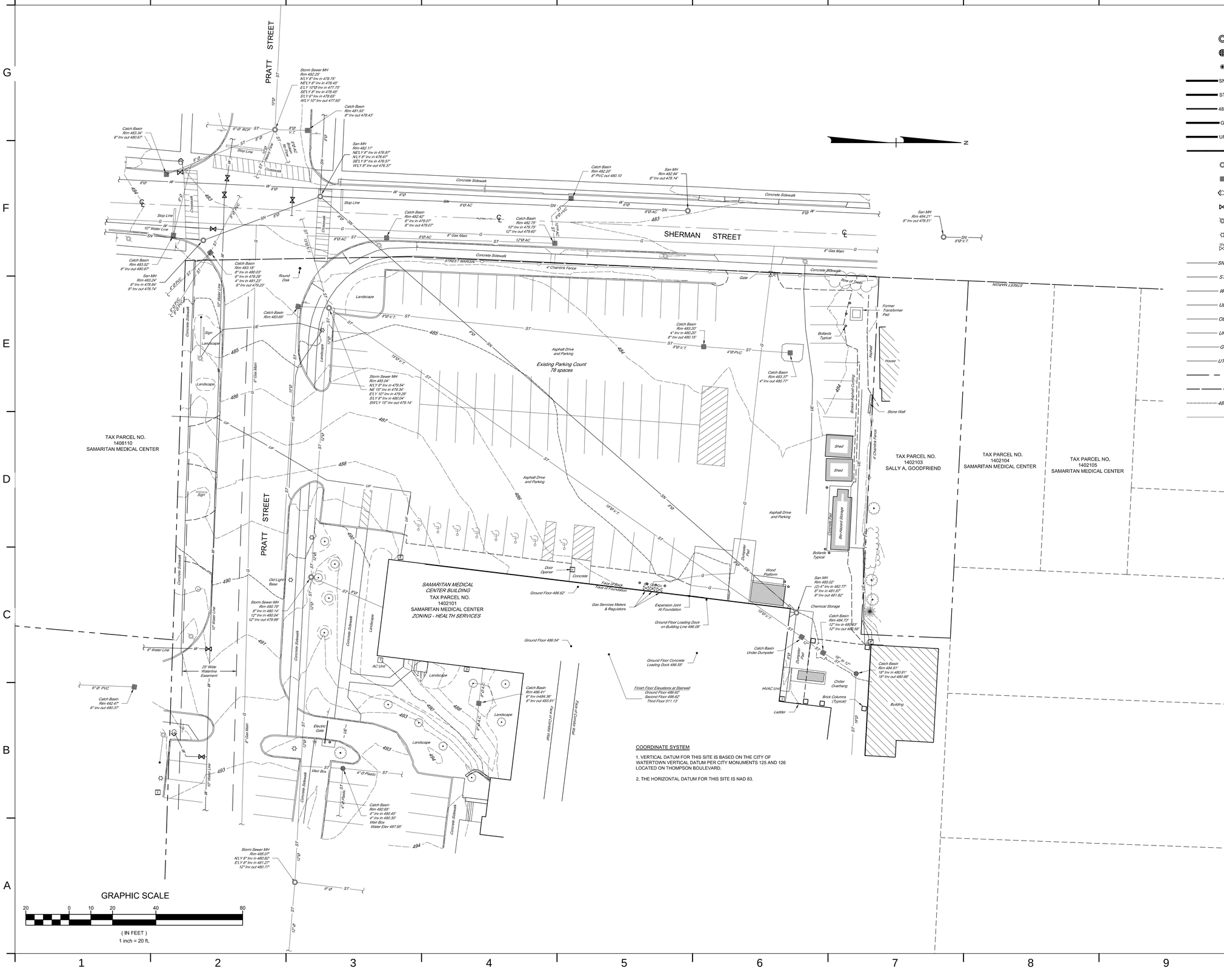
DRAWING INDEX

O-G001	COVER SHEET
C-100c	EXISTING SITE PLAN
C-101c	CONSTRUCTION, EROSION & SEDIMENT CONTROL PLAN
C-102c	SITE DEMOLITION PLAN
C-103c	ACCESS & UTILITY PLAN
C-104c	GRADING & UTILITY PLAN
C-105c	CODE COMPLIANCE SITE PLAN
C-106c	LANDSCAPING SITE PLAN
C-107c	PHOTOMETRIC PLAN
C-200c	SITE DETAILS
C-201c	SITE DETAILS
E-A100	FIRST FLOOR REFERENCE PLAN
D-A100	SECOND FLOOR REFERENCE PLAN
C-A100	THIRD FLOOR REFERENCE PLAN
C-A201	EXTERIOR ELEVATIONS
C-A202	EXTERIOR ELEVATIONS
C-A111	ROOF PLAN

PROGRESS PRINT
NOT FOR CONSTRUCTION OR BIDDING

SET NUMBER
O-G001

PHASE IV: MATERNITY, PEDIATRICS, IMHU, and SUPPORT SERVICES
SAMARITAN MEDICAL CENTER



LEGEND

- SANITARY SEWER MANHOLE
- STORM SEWER CATCH BASIN
- PIPE BOLLARD
- SANITARY SEWER LINE
- STORM SEWER LINE
- CONTOUR
- GAS LINE
- UNDERGROUND FIBER OPTIC LINE
- ADA ACCESSIBLE TRAVEL ROUTE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING STORM SEWER CATCH BASIN
- EXISTING FIRE HYDRANT
- EXISTING VALVE
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING GAS VALVE
- EXISTING SANITARY SEWER LINE
- EXISTING STORM SEWER LINE
- EXISTING WATER LINE
- EXISTING UNDERGROUND ELECTRIC
- EXISTING OVERHEAD ELECTRIC
- EXISTING UNDERGROUND FIBER OPTIC
- EXISTING UNDERGROUND GAS
- EXISTING UNDERGROUND TELEPHONE
- PROPERTY LINE
- STREET MARGIN
- EXISTING CONTOUR
- EXISTING FENCE

HOLT ARCHITECTS
Architecture
Planning
Interior Design
217 North Aurora Street
Ithaca NY 14850
p 607.273.7600 f 607.273.0475

Bernier, Carr & Associates, Engineers, Architects and Land Surveyors, P.C.
327 Mullin Street
Watertown NY 13601
p 315.782.8130 f 315.782.7192

REVISION SCHEDULE

NAME	DATE

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PHASE IV: MATERNITY, PEDIATRICS, IMHU, and SUPPORT SERVICES

SAMARITAN MEDICAL CENTER
830 WASHINGTON ST, WATERTOWN, NY

DATE:	12/17/2015
PROJECT:	2014-150B
OTHER:	
DRAWN BY:	JBE

EXISTING SITE PLAN

C-100c

NOTES:

1. **SITE SIGNAGE, WARNING CONES , ETC. SHALL BE USED TO SAFELY DIRECT TO MOVEMENTS OF PEDESTRIANS AND VEHICLES AROUND THE CONSTRUCTION SITE.**
2. **EXPLICIT WRITING ADVANCE NOTICE SHALL BE GIVEN NOTIFYING ANY INVOLVED OR INTERESTED PARTIES OF ANY DAY-TO-DAY INTERRUPTIONS OR SHUT DOWNS, AS A RESULT OF CONSTRUCTION ACTIVITIES.**
3. **STOCK PILE AREAS SHALL BE LOCATED AT THE DIRECTION OF ARCHITECT & OWNER.**

PRATT STREET

SHERMAN STREET

NIGHMAN TERRACE

TEMPORARY CONSTRUCTION FENCE, TYP

TEMPORARY CONSTRUCTION ENTRANCE

TEMPORARY SILT FENCE

TEMPORARY MATERIALS STOCK PILING AREA

TEMPORARY INLET PROTECTION, TYP

PRIMARY CONSTRUCTION STAGING AREA

TEMPORARY CONSTRUCTION FENCE, TYP

TEMPORARY CONSTRUCTION FENCE, TYP

TEMPORARY CONSTRUCTION ENTRANCE

TEMPORARY SILT FENCE

TAX PARCEL NO.
1408110
SAMARITAN MEDICAL CENTER

TAX PARCEL NO.
1402103
SALLY A. GOODFRIEND

TAX PARCEL NO.
1402104
SAMARITAN MEDICAL CENTER

TAX PARCEL NO.
1402105
SAMARITAN MEDICAL CENTER

SAMARITAN MEDICAL CENTER BUILDING
TAX PARCEL NO.
1402101
SAMARITAN MEDICAL CENTER
ZONING - HEALTH SERVICES

Existing Parking Count 78 spaces

COORDINATE SYSTEM

1. VERTICAL DATUM FOR THIS SITE IS BASED ON THE CITY OF WATERTOWN VERTICAL DATUM PER CITY MONUMENTS 125 AND 126 LOCATED ON THOMPSON BOULEVARD.

2. THE HORIZONTAL DATUM FOR THIS SITE IS NAD 83.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

HOLT ARCHITECTS
Architecture
Planning
Interior Design
217 North Aurora Street
Ithaca NY 14850
p 607.273.7600 f 607.273.0475

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327 Mullin Street
Watertown NY 13601
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REVISION SCHEDULE

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PROGRESS PRINT

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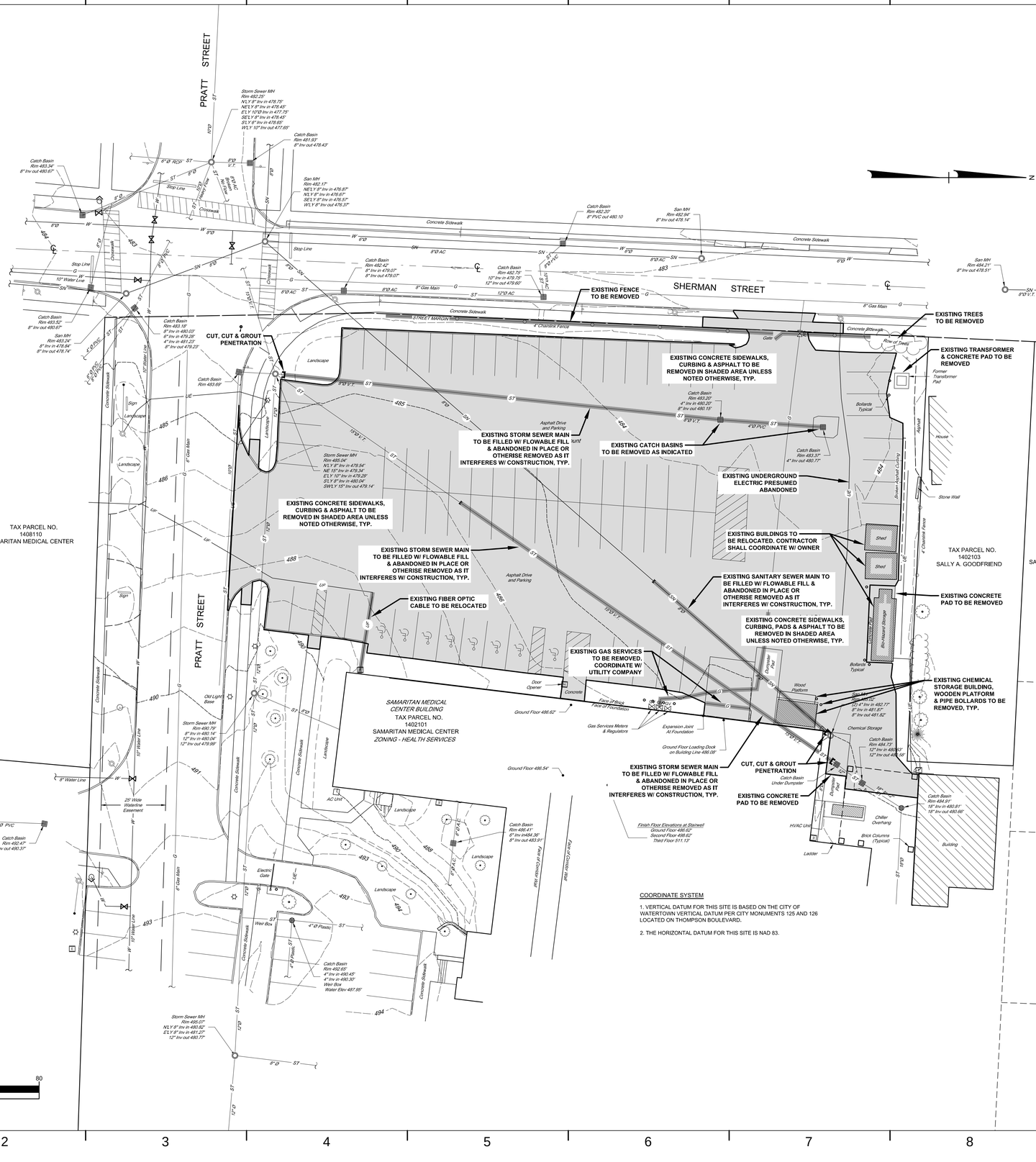
PHASE IV: MATERNITY, PEDIATRICS, IMHU, and SUPPORT SERVICES
SAMARITAN MEDICAL CENTER
830 WASHINGTON ST, WATERTOWN, NY

DATE:	12/17/2015
PROJECT:	2014-150B
OTHER:	
DRAWN BY:	JBE

CONSTRUCTION, EROSION & SEDIMENT CONTROL PLAN

C-101c



HOLT ARCHITECTS
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Ithaca NY 14850
p 607.373.7600 f 607.273.0475

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PHASE IV: MATERNITY, PEDIATRICS, IMHU, and SUPPORT SERVICES

SAMARITAN MEDICAL CENTER
830 WASHINGTON ST, WATERTOWN, NY

DATE:	12/17/2015
PROJECT:	2014-150B
OTHER:	
DRAWN BY:	JBE

SITE DEMOLITION PLAN

C-102c

SHERMAN STREET

STREET MARION

PRATT STREET

TRAVERSABLE CONCRETE CURB

SNOW STORAGE AREA

CATCH BASIN

BIORETENTION AREA NO.1

CURB CUT

TRAVERSABLE CONCRETE CURB BULL NOSE

LINE STRIPING, TYP. (3) SPACES

STANDARD CONCRETE CURB

STOP SIGN

STOP BAR

MATCH EXISTING & SEAL JOINT

HEAVY DUTY CONCRETE SIDEWALK

ASPHALT PAVEMENT

LINE STRIPING, TYP. (4) SPACES

ADA DETECTABLE WARING FIELD, TYP.

MATCH EXISTING TO NEAREST JOINT, TYP.

STANDARD CONCRETE CURB, TYP.

CONCRETE SIDEWALK

LINE STRIPING, TYP. (30 SPACES)

CURB CUT, TYP. (5)

LANDSCAPED RAIN GARDEN, TYP. (5)

TRAVERSABLE GRANITE CURB BULL NOSE, TYP. (5) LANDSCAPED RAIN GARDENS

LINE STRIPING & MARKINGS, TYP.

(5) ACCESSIBLE PARKING SPACES, TYP.

STANDARD GRANITE CURBING

ALL ACCESS RAMP

CANOPY

CONCRETE SIDEWALK

DECORATIVE BOLLARD, TYP. BOTH SIDES

WOMEN'S & CHILDREN'S ADDITION F.F.486.60

LOADING DOCK F.F.486.60

STANDARD PIPE BOLLARD, TYP. 4

SANITARY SEWER MANHOLE

CONCRETE PAD

REFUSE STORAGE AREA

Dumpster Pad

MATCH EXISTING & SEAL JOINT

HEAVY DUTY CONCRETE SIDEWALK

MATCH EXISTING & SEAL JOINT

STOP BAR

STANDARD CONCRETE CURB

STOP SIGN

ADA DETECTABLE WARING FIELD, TYP.

2' CURB TRANSITION, TYP.

BIOHAZARD STORAGE AREA

SNOW STORAGE AREA

15' MIN.

LINE STRIPING, TYP. (10 SPACES)

SITE LIGHTING FIXTURE. REFER TO ELECTRICAL PLAN, TYP. 3

TAX PARCEL NO. 1402103 SALLY A. GOODFRIEND

Concrete Sidewalk

Round Disk

Old Light Base

Concrete Sidewalk

Landscape

AC Unit

Landscape

4" Chainlink Fence

House

Chiller

B-1 B-2 B-3 B-4 B-5 B-6 B-7 B-8

R=35' R=5' R=3' R=3.5'

144' 24' 18' 9' 20' TYP. 5' TYP. 12' 6'-6" 15' MIN. 18' TYP. 9' TYP.

SAMARITAN MEDICAL CENTER BUILDING

TAX PARCEL NO. 1402101 SAMARITAN MEDICAL CENTER

ZONING - HEALTH SERVICES

Ground Floor 486.62'

Face of Foundation

Finish Floor Elevations at Stairwell
Ground Floor 486.62'
Second Floor 498.62'
Third Floor 511.13'

Ground Floor Concrete Loading Dock 486.55'

COORDINATE SYSTEM

1. VERTICAL DATUM FOR THIS SITE IS BASED ON THE CITY OF WATERTOWN VERTICAL DATUM PER CITY MONUMENTS 125 AND 126 LOCATED ON THOMPSON BOULEVARD.

2. THE HORIZONTAL DATUM FOR THIS SITE IS NAD 83.

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

HOLT ARCHITECTS
Architecture
Planning
Interior Design
217 North Aurora Street
Ithaca NY 14850
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Bernier, Carr & Associates, Engineers, Architects and Land Surveyors, P.C.
327 Mullin Street
Watertown NY 13601
p 315.782.8130 f 315.782.7192

REVISION SCHEDULE

NAME	DATE

PROGRESS PRINT

NOT FOR CONSTRUCTION OR BIDDING

PHASE IV: MATERNITY, PEDIATRICS, IMHU, and SUPPORT SERVICES

SAMARITAN MEDICAL CENTER
830 WASHINGTON ST, WATERTOWN, NY

DATE:	12/17/2015
PROJECT:	2014-150B
OTHER:	
DRAWN BY:	JBE

ACCESS & PARKING SITE PLAN

C-103c

NOTES

1. ALL WORK TO BE PERFORMED WITHIN THE CITY OF WATERTOWN MARGIN WILL REQUIRE SIGN-OFF FROM A PROFESSIONAL ENGINEER, LICENSED AND CURRENTLY REGISTERED TO PRACTICE IN THE STATE OF NEW YORK, THAT THE WORK WAS BUILT ACCORDING TO THE APPROVED SITE PLAN AND APPLICABLE CITY OF WATERTOWN STANDARDS. COMPACTION TESTING WILL BE REQUIRED FOR ALL WORK TO BE PERFORMED WITHIN THE CITY OF WATERTOWN MARGIN AND MUST BE SUBMITTED TO THE CITY OF WATERTOWN CODES DEPARTMENT.

2. ALL WATER MAIN & SERVICE WORK MUST BE COORDINATED WITH THE CITY OF WATERTOWN WATER DEPARTMENT. THE CITY OF WATERTOWN WATER DEPARTMENT REQUIREMENTS SUPERSEDE ANY OTHER PLANS & SPECIFICATIONS PROVIDED.

4"Ø PERFORATED SDR-35 PVC, TYP.

C.B. #3 RIM 483.85 INV. 479.25

CONNECT TO EXISTING CATCH BASIN INV. 479.15

CONNECT 6"Ø SDR-35 PVC SANITARY SEWER LATERAL INTO EXISTING SANITARY SEWER MAIN W/ SADDLE TAP

C.B. #4 RIM 486.00 INV. 479.71

SANITARY SEWER CLEANOUT

6"Ø SDR-35 PVC SEWER LATERAL

REALIGNED FIBER OPTIC CABLE. COORDINATE W/ UTILITY COMPANY

CANOPY

SANITARY SEWER CLEANOUT

WOMEN'S & CHILDREN'S ADDITION F.F.486.60

LOADING DOCK F.F.486.60

Ground Floor 486.62'

Face of Foundation

SAMARITAN MEDICAL CENTER BUILDING

TAX PARCEL NO. 1402101

SAMARITAN MEDICAL CENTER

ZONING - HEALTH SERVICES

COORDINATE SYSTEM

1. VERTICAL DATUM FOR THIS SITE IS BASED ON THE CITY OF WATERTOWN VERTICAL DATUM PER CITY MONUMENTS 125 AND 126 LOCATED ON THOMPSON BOULEVARD.

2. THE HORIZONTAL DATUM FOR THIS SITE IS NAD 83.

Finish Floor Elevations at Stairwell
Ground Floor 486.62'
Second Floor 498.62'
Third Floor 511.13'

Ground Floor Concrete Loading Dock 486.55'

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)

1 inch = 10 ft.

C.B. #2 RIM 483.15 INV. 479.85

C.B.#1 RIM 483.40 INV. 480.10

REALIGNED GAS SERVICE PIPING. COORDINATE W/ UTILITY COMPANY.

M.H.#2 484.90 8"Ø INV.IN 481.10 8"Ø INV.OUT 481.00

M.H.#1 485.00 8"Ø INV.IN 481.70 8"Ø INV.OUT 481.60

CONNECT 8"Ø SEWER MAIN INTO EXISTING M.H.#1 W/ WATERTIGHT CONNECTION. RE-BENCH FLOW CHANNEL FOR CONNECTION INV.481.82. GROUT & FILL IN EXISTING PENETRATION.

GAS REGULATOR & METER. COORDINATE W/ UTILITY COMPANY

CONNECT TO EXIST CATCH BASIN INV. 4

CONNECT EXISTING 8"Ø SEWER MAIN INTO M.H.#2 W/ WATERTIGHT CONNECTION

M.H.#3 RIM 485.75 8"Ø INV.IN 480.37 8"Ø INV.OUT 480.27

TAX PARCEL NO. 1402103 SALLY A. GOODFRIEND

PRATT STREET

HOLT ARCHITECTS

Architecture
Planning
Interior Design

217 North Aurora Street
Ithaca NY 14850
p 607.273.7600 f 607.273.0475

Bernier, Carr & Associates, Engineers, Architects and Land Surveyors, P.C.

327 Mullin Street
Watertown NY 13601
p 315.782.8130 f 315.782.7192

REVISION SCHEDULE

NAME	DATE

PROGRESS PRINT

NOT FOR CONSTRUCTION OR BIDDING

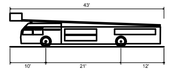
PHASE IV: MATERNITY, PEDIATRICS, IMHU, and SUPPORT SERVICES

SAMARITAN MEDICAL CENTER
830 WASHINGTON ST, WATERTOWN, NY

DATE:	12/17/2015
PROJECT:	2014-150B
OTHER:	
DRAWN BY:	JBE

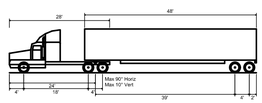
GRADING & UTILITY PLAN

C-104c



Copy of Copy of Aerial Fire Truck	
Overall Length	43.000ft
Overall Width	8.250ft
Overall Body Height	7.515ft
Min Body Ground Clearance	0.765ft
Track Width	8.250ft
Lock-to-lock time	5.00s
Max Wheel Angle	45.00°

CITY OF WATERTOWN AERIAL FIRE TRUCK



STAA-STD - STAA Design Vehicle (50ft MTCR)	
Overall Length	69.000ft
Overall Width	8.500ft
Overall Body Height	12.227ft
Min Body Ground Clearance	1.422ft
Track Width	8.500ft
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	50.000ft

HEAVY TRACTOR TRAILER DESIGN DELIVERY VEHICLE

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

1 inch = 20 ft.

HOLT ARCHITECTS

Architecture
Planning
Interior Design

217 North Aurora Street
Ithaca NY 14850
p 607.273.7600 f 607.273.0475

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327 Mullin Street
Watertown NY 13601
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REVISION SCHEDULE

NAME	DATE

PROGRESS PRINT

NOT FOR CONSTRUCTION OR BIDDING

PHASE IV: MATERNITY, PEDIATRICS, IMHU, and SUPPORT SERVICES

SAMARITAN MEDICAL CENTER
830 WASHINGTON ST, WATERTOWN, NY

DATE:	12/17/2015
PROJECT:	2014-150B
OTHER:	
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CODE COMPLIANCE SITE PLAN

C-105c

HOLT ARCHITECTS
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Planning
Interior Design
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327 Mullin Street
Watertown NY 13601
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REVISION SCHEDULE

NAME	DATE

PROGRESS PRINT

NOT FOR CONSTRUCTION OR BIDDING

PHASE IV: MATERNITY, PEDIATRICS, IMHU, and SUPPORT SERVICES

SAMARITAN MEDICAL CENTER
830 WASHINGTON ST, WATERTOWN, NY

DATE:	12/17/2015
PROJECT:	2014-150B
OTHER:	
DRAWN BY:	JBE

LANDSCAPING SITE PLAN

C-106c

Calculation Summary								
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
CalcPts_1	Illuminance	Fc	1,05	2,7	0,0	N.A.	N.A.
Spill Light	Illuminance	Fc	0,24	2,7	0,0	N.A.	N.A.

Luminaire Schedule												
Symbol	Label	Qty	[MANUFAC]	Arrangement	LLD	LDD	BF	LLF	Lum. Watts	Arr. Watts	Total Watts	Lum. Lumens	Description
	LA-V	2	COOPER LIGHTING - McGRAW-EDISON	SINGLE	0,920	0,950	1,000	0,874	157	157	314	16457	GLEON-AE-03-LED-E1-5MQ
	LA-IIIH	1	COOPER LIGHTING - McGRAW-EDISON	SINGLE	0,920	0,950	1,000	0,874	157	157	157	13384	GLEON-AE-03-LED-E1-SL3-HSS

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)

1 inch = 10 ft.

SAMARITAN MEDICAL CENTER BUILDING

TAX PARCEL NO. 1402101

SAMARITAN MEDICAL CENTER

ZONING - HEALTH SERVICES

COORDINATE SYSTEM

1. VERTICAL DATUM FOR THIS SITE IS BASED ON THE CITY OF WATERTOWN VERTICAL DATUM PER CITY MONUMENTS 125 AND 126 LOCATED ON THOMPSON BOULEVARD.

2. THE HORIZONTAL DATUM FOR THIS SITE IS NAD 83.

HOLT ARCHITECTS

Architecture
Planning
Interior Design

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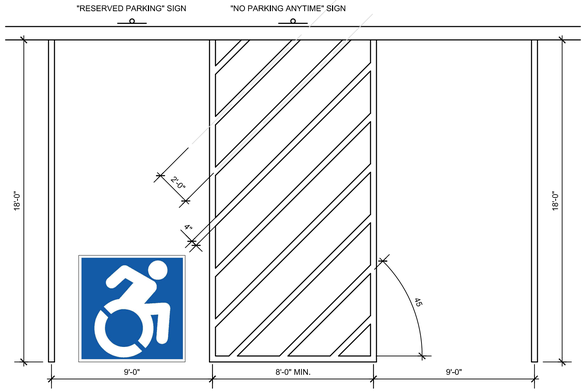
PHASE IV: MATERNITY, PEDIATRICS, IMHU, and SUPPORT SERVICES

SAMARITAN MEDICAL CENTER
830 WASHINGTON ST, WATERTOWN, NY

DATE:	12/17/2015
PROJECT:	2014-150B
OTHER:	
DRAWN BY:	JBE

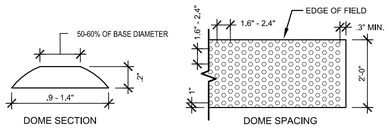
PHOTOMETRIC PLAN

C-107c



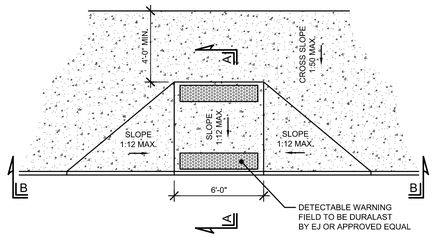
PARKING SPACE LAYOUT DETAIL (TYPICAL & HANDICAP ACCESIBLE SPACES)

NOT TO SCALE



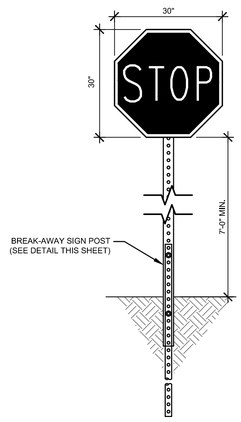
DETECTABLE WARNING FIELD DETAILS

NOT TO SCALE



ALL ACCESS RAMP DETAILS

NOT TO SCALE



STOP SIGN DETAIL

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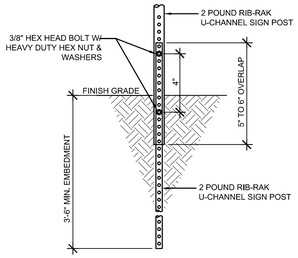

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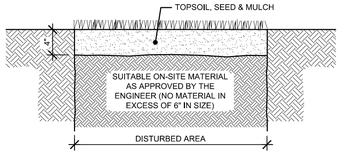

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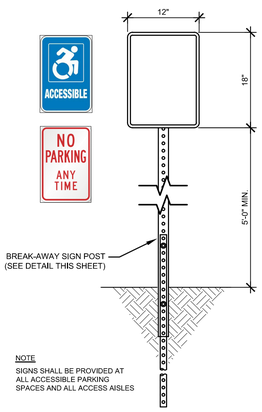

ACCESSIBLE PARKING SIGN DETAIL

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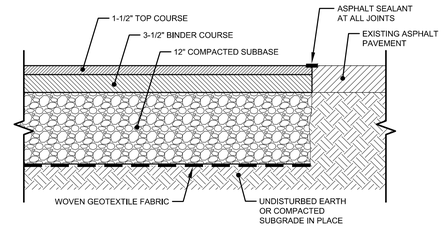
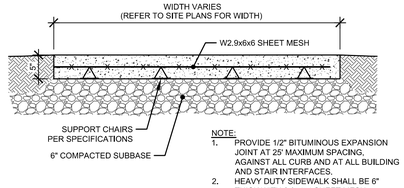


ASPHALT PAVEMENT RECONSTRUCTION DETAIL

NOT TO SCALE



CONCRETE SIDEWALK DETAIL

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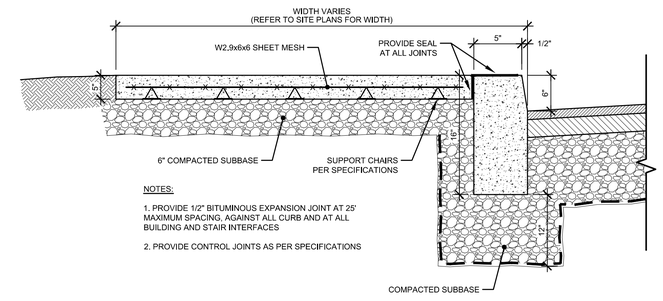

GRANITE CURB AND SIDEWALK DETAIL

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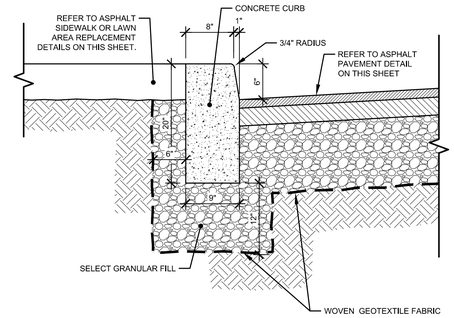

STANDARD CONCRETE CURB DETAIL

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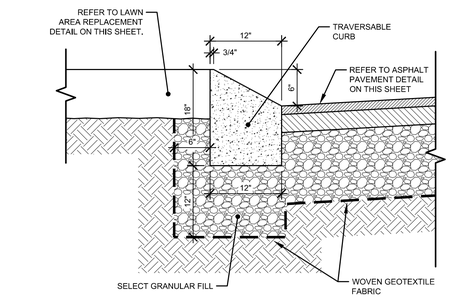

TRAVERSABLE CURB DETAIL

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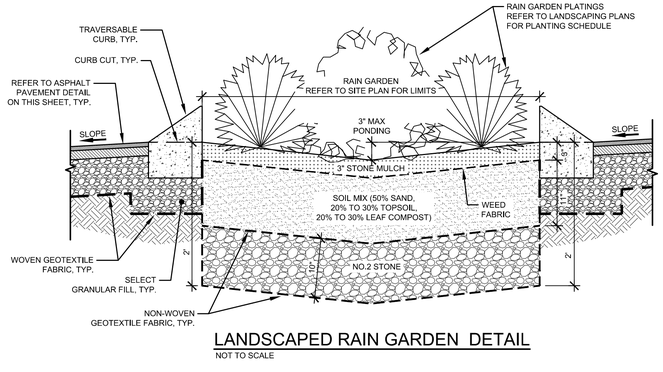

LANDSCAPED RAIN GARDEN DETAIL

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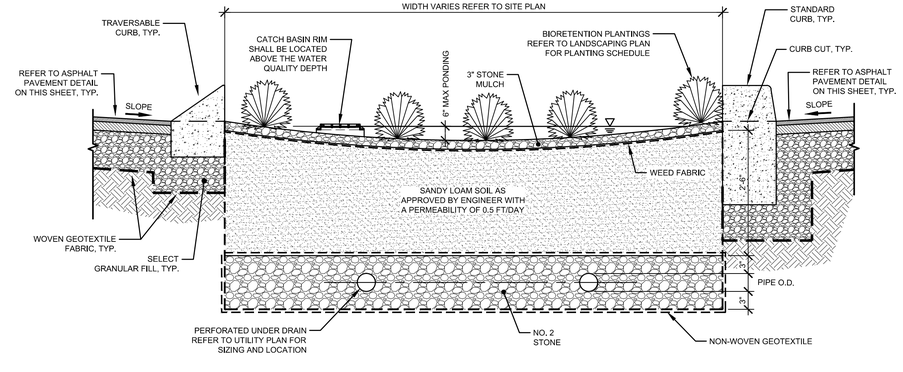

BIO-RETENTION AREA WITH TRAVERSABLE CURB DETAIL

NOT TO SCALE

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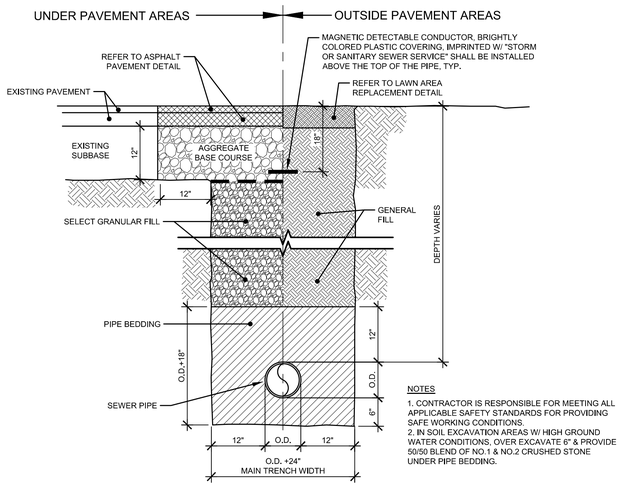
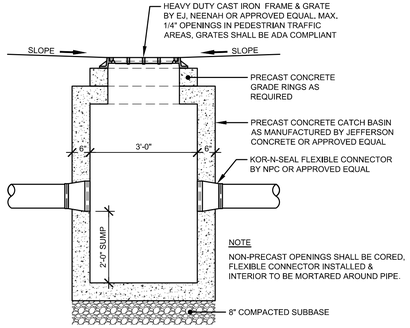


NOTES

1. CONTRACTOR IS RESPONSIBLE FOR MEETING ALL APPLICABLE SAFETY STANDARDS FOR PROVIDING SAFE WORKING CONDITIONS.
2. IN SOIL EXCAVATION AREAS W/ HIGH GROUND WATER CONDITIONS, OVER EXCAVATE 6" & PROVIDE 50/50 BLEND OF NO.1 & NO.2 CRUSHED STONE UNDER PIPE BEDDING.

STORM / SEWER TRENCH AND PIPE BEDDING DETAIL

NOT TO SCALE

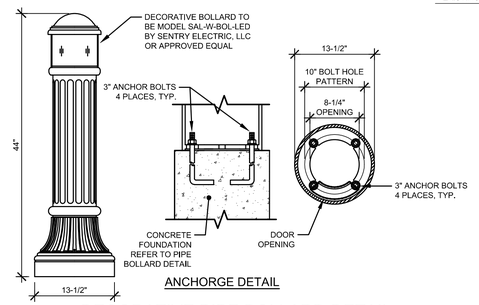


NOTE

NON-PRECAST OPENINGS SHALL BE CORED, FLEXIBLE CONNECTOR INSTALLED & INTERIOR TO BE MORTARED AROUND PIPE.

CATCH BASIN DETAIL

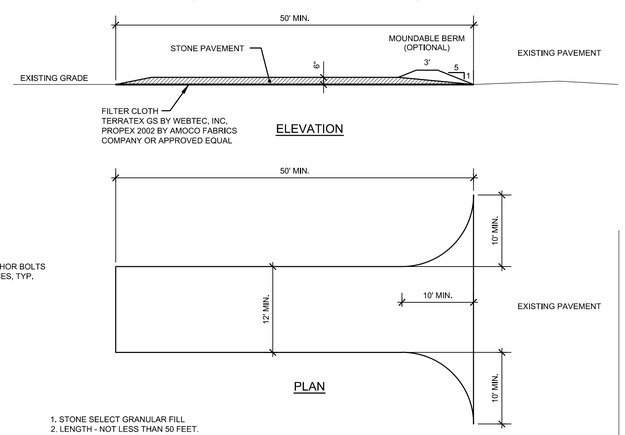
NOT TO SCALE



ANCHORGE DETAIL

DECORATIVE PIPE BOLLARD DETAIL

NOT TO SCALE



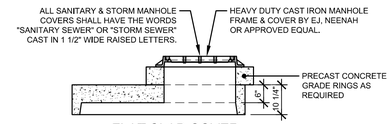
ELEVATION

PLAN

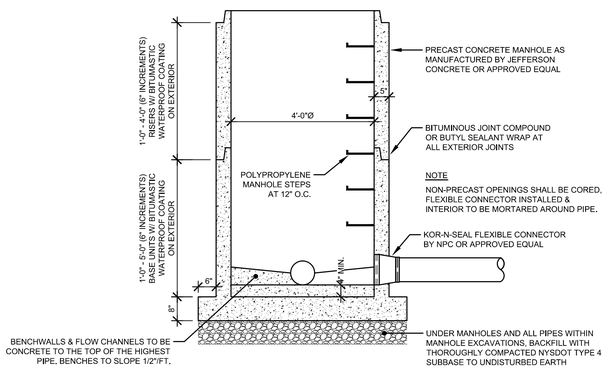
1. STONE SELECT GRANULAR FILL
2. LENGTH - NOT LESS THAN 50 FEET.
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FEET MINIMUM. BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS AND EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE, IF PIPING IS PRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY; ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



FLAT SLAB COVER

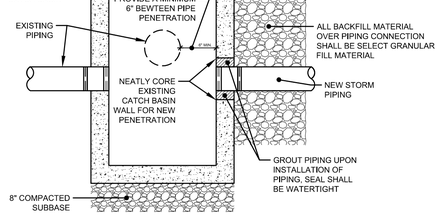


NOTES

1. ALL MANHOLES ARE 4' I.D. UNLESS OTHERWISE NOTED ON PLANS OR SPECIFICATIONS.
2. PIPE CONNECTIONS TO ALL MANHOLES TO BE MADE USING FLEXIBLE BOOTS TO FILL IN THE SPACE BETWEEN THE OUTSIDE OF THE PIPE AND THE MANHOLE WALLS.
3. MANHOLE FRAMES ARE TO BE INSTALLED 1/4" BELOW AND MATCH SLOPE OF STREET GRADIENTS AND/OR CROWN OF PAVEMENT, DRIVEWAYS, LAWNS AND OTHER LOCATIONS WHERE FRAME AND COVER SHOULD CONFORM TO EXISTING SLOPES AND MATCH EXISTING ELEVATIONS.
4. FOR SHALLOW MANHOLES, VARY HEIGHT OF BASE SECTION BY CAST IN PLACE OR PRECAST MANHOLE BASE TO PERMIT INSTALLATION OF FLAT SLAB TOP.
5. MAGNETIC DETECTABLE CONDUCTOR, BRIGHTLY COLORED PLASTIC COVERING, IMPRINTED W/ "SANITARY SEWER SERVICE" SHALL BE INSTALLED ABOVE THE TOP OF THE PIPE, TYP.

SEWER MANHOLE DETAIL

NOT TO SCALE



CONNECTION TO EXISTING CATCH BASIN DETAIL

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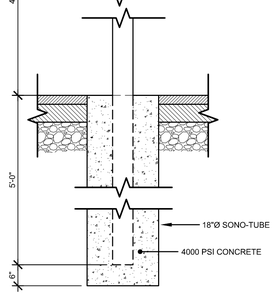

PIPE BOLLARD DETAIL

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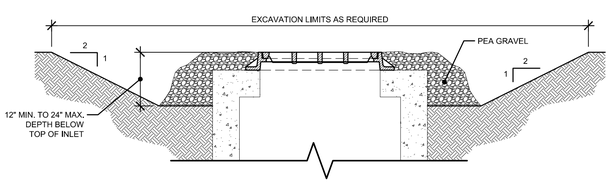
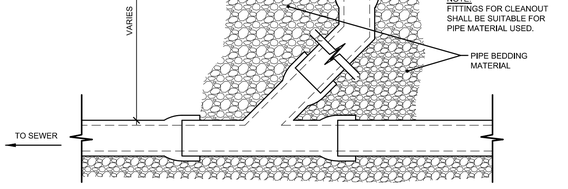


TEMPORARY CATCH BASIN INLET PROTECTION DETAIL

NOT TO SCALE



GRAVITY SEWER CLEANOUT DETAIL

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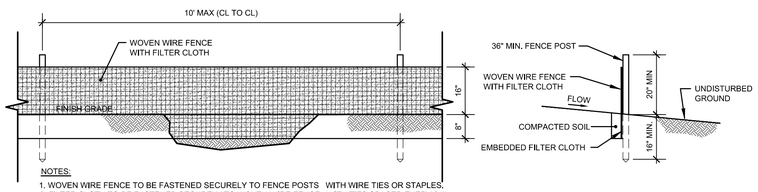
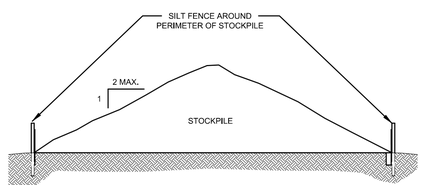


NOTES:

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN BULGES DEVELOP IN THE SILT FENCE.

SILT FENCE DETAIL

NOT TO SCALE



SOIL STOCKPILING DETAIL

NOT TO SCALE

ADDITIONAL STORMWATER POLLUTION PREVENTION NOTES:

- THERE SHALL NOT BE MORE THAN FIVE (5) ACRES OF DISTURBED SOIL AT ANY ONE TIME.
- DISTURBED AREAS WITHIN THE NYSDOT HIGHWAY RIGHT-OF-WAY SHALL BE PROTECTED FROM EROSION WITHIN 7 DAYS, ALL OTHER AREAS SHALL BE PROTECTED WITHIN 14 DAYS.
- EROSION CONTROL BLANKET SHALL BE INSTALLED ON DISTURBED AREAS WITH 3:1 OR GREATER SLOPE OR IN CONCENTRATED FLOW PATHS.
- CONTRACTOR SHALL PREPARE AND CONTINUOUSLY UPDATE A CONSTRUCTION PHASING PLAN.
- CONTRACTOR SHALL PROVIDE LOCATIONS OF OFF-SITE MATERIAL, WASTE, BORROW OR EQUIPMENT.
- SOIL AND STONE STOCKPILES SHALL BE PROTECTED FROM EROSION. WHEN STOCKPILES ARE IN USE, THE PROTECTION SHALL BE REPLACED AT THE END OF EACH WORK DAY.
- A STABILIZED CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED AT STAGING AREAS TO PREVENT TRACKING SEDIMENT ONTO PUBLIC RIGHT-OF-WAY OR STREETS.
- CONTRACTOR SHALL INSPECT ALL EROSION AND SEDIMENT CONTROL PRACTICES WEEKLY, AND AFTER ALL RAINFALL EVENTS.
- CONTRACTOR SHALL MAINTAIN EROSION AND SEDIMENT CONTROL PRACTICES UNTIL PERMANENT RESTORATION IS ESTABLISHED.

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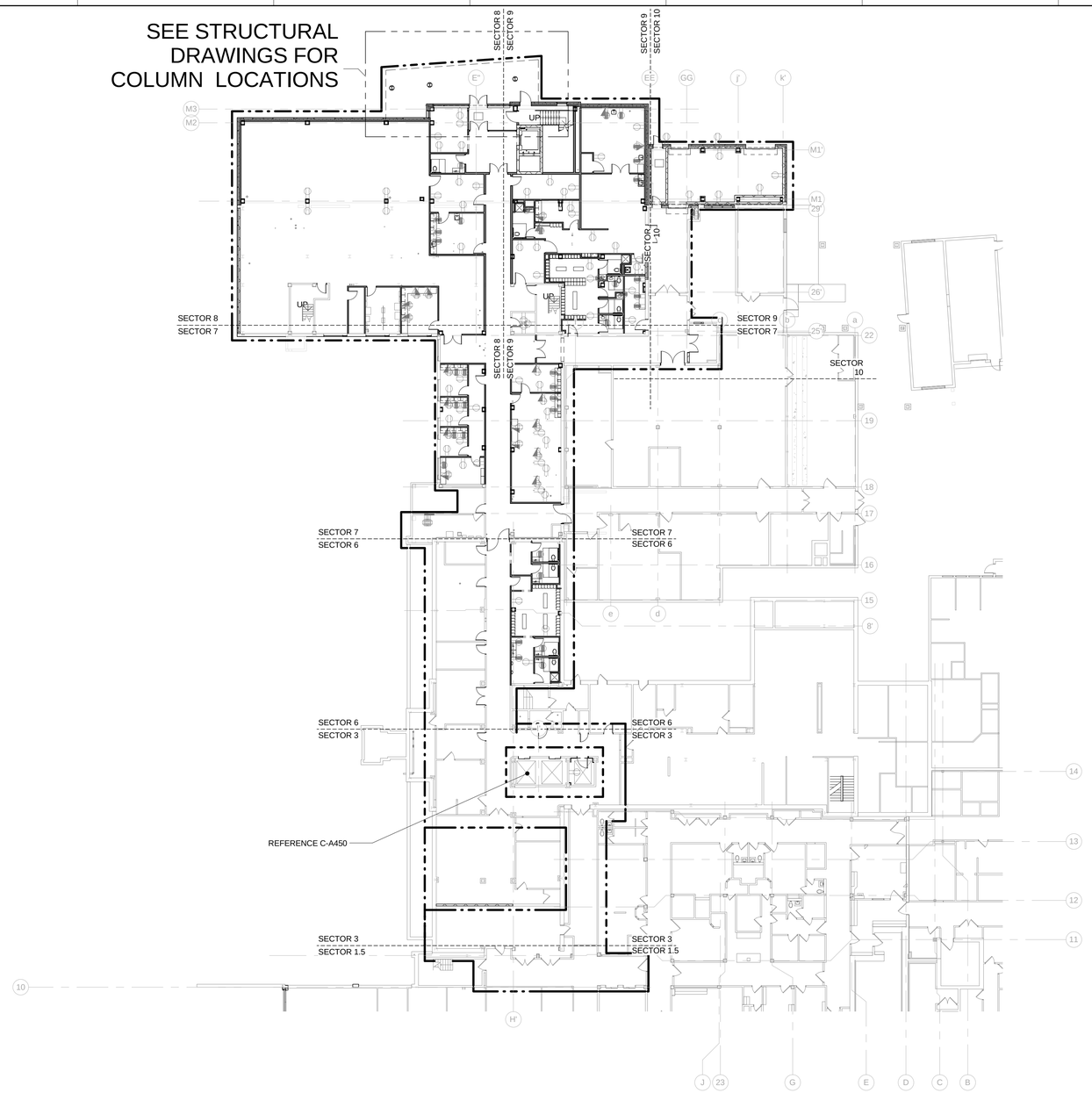
SEE STRUCTURAL DRAWINGS FOR COLUMN LOCATIONS



A4 FIRST FLOOR - REFERENCE PLAN
3/64" = 1'-0"

N

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FIRST FLOOR REFERENCE PLAN

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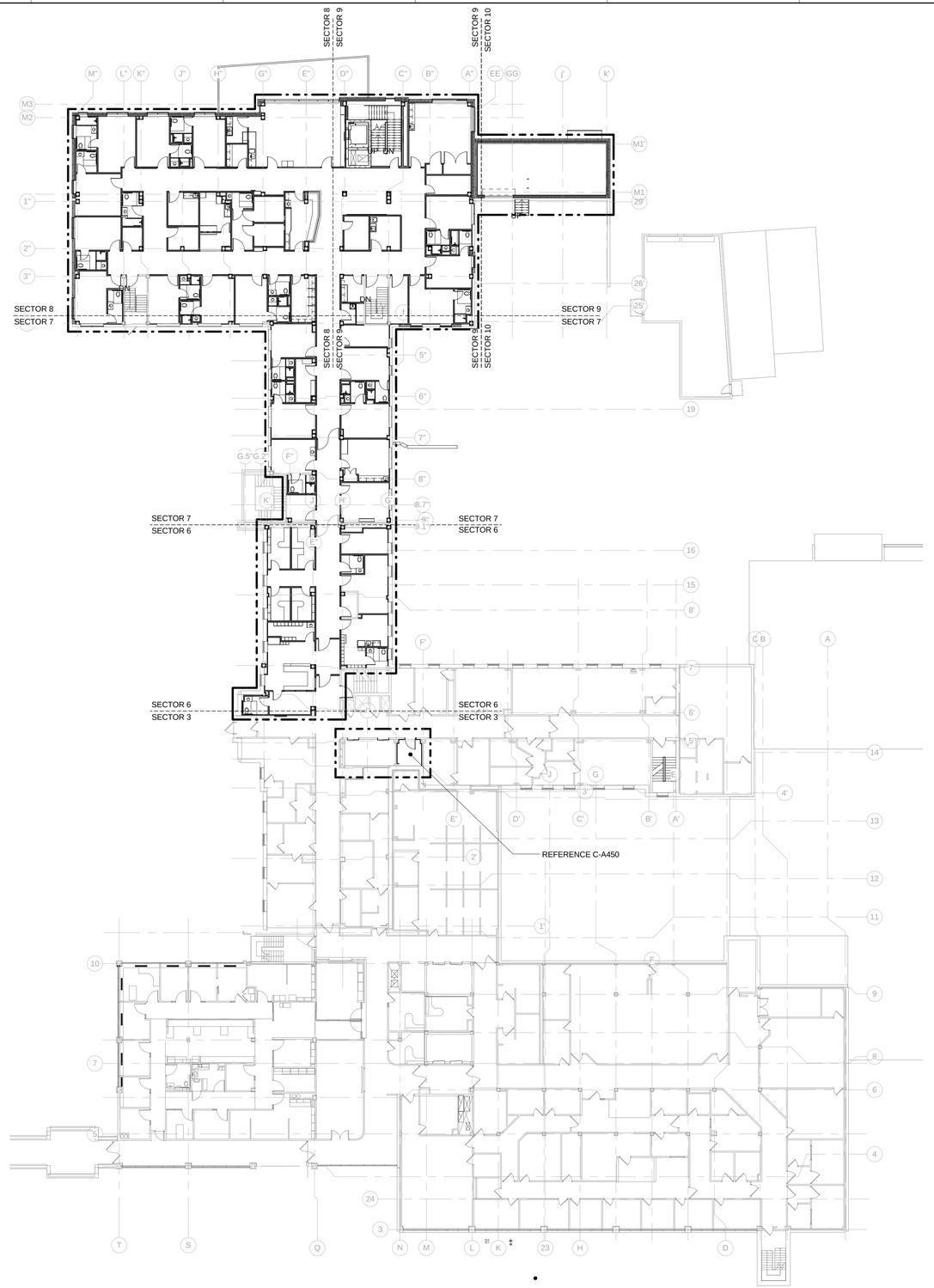

A3 SECOND FLOOR - IMHU REFERENCE PLAN
3/64" = 1'-0"

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SECOND FLOOR REFERENCE PLAN

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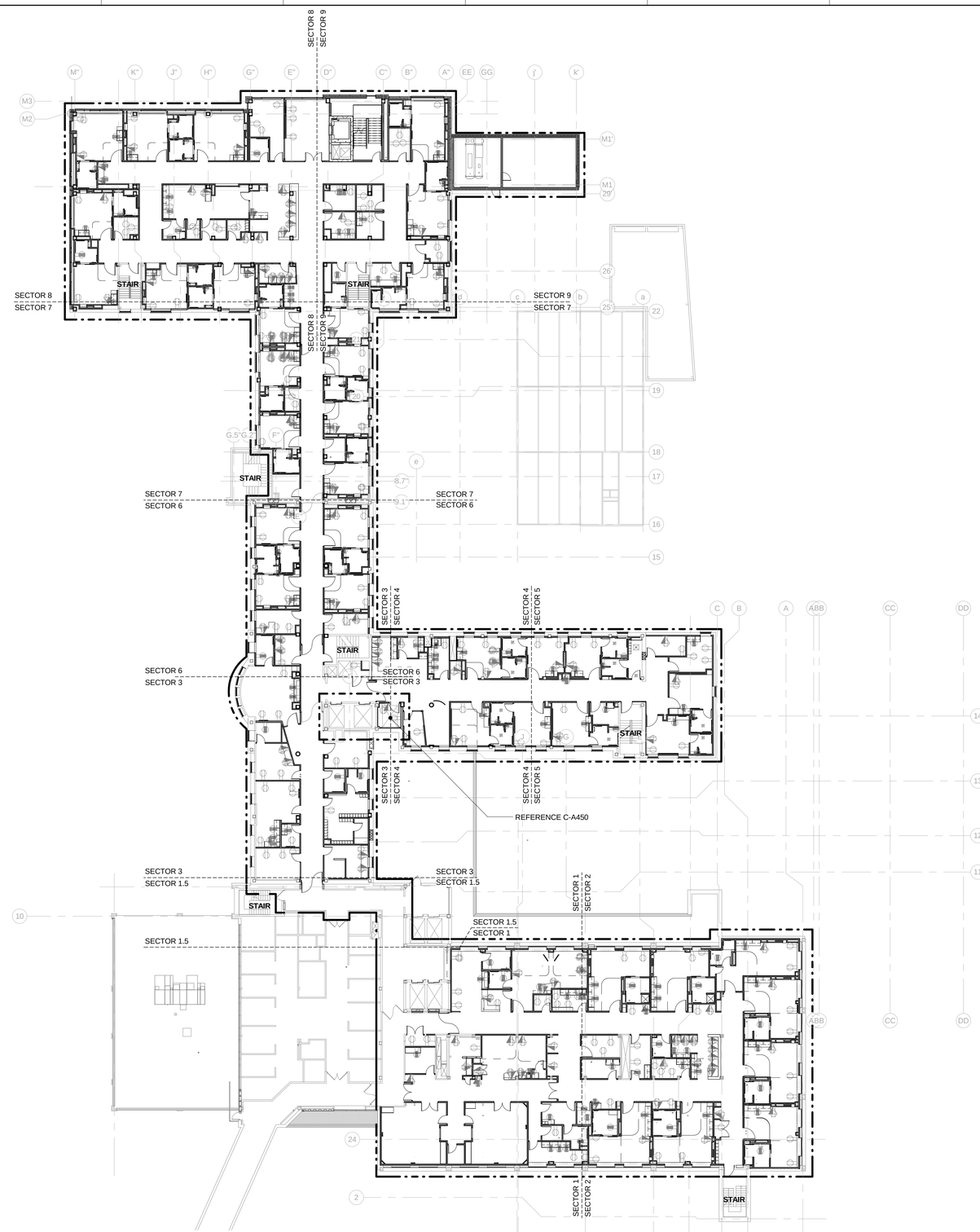

A3 THIRD FLOOR REFERENCE PLAN
3/64" = 1'-0"

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THIRD FLOOR REFERENCE PLAN

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KEY PLAN - ELEVATIONS
1" = 100'-0"

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EXTERIOR ELEVATIONS

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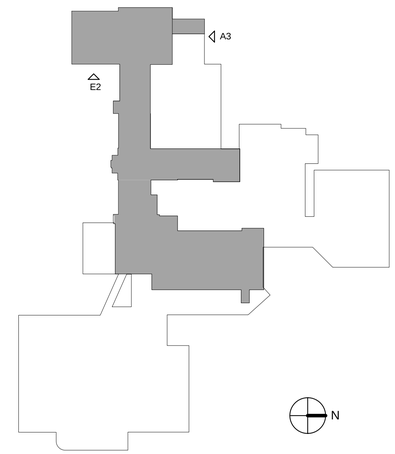
E2 EAST ELEVATION
1/8" = 1'-0"

A3 NORTH ELEVATION
1/8" = 1'-0"



KEY PLAN - ELEVATIONS 2
1" = 100'-0"

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EXTERIOR ELEVATIONS

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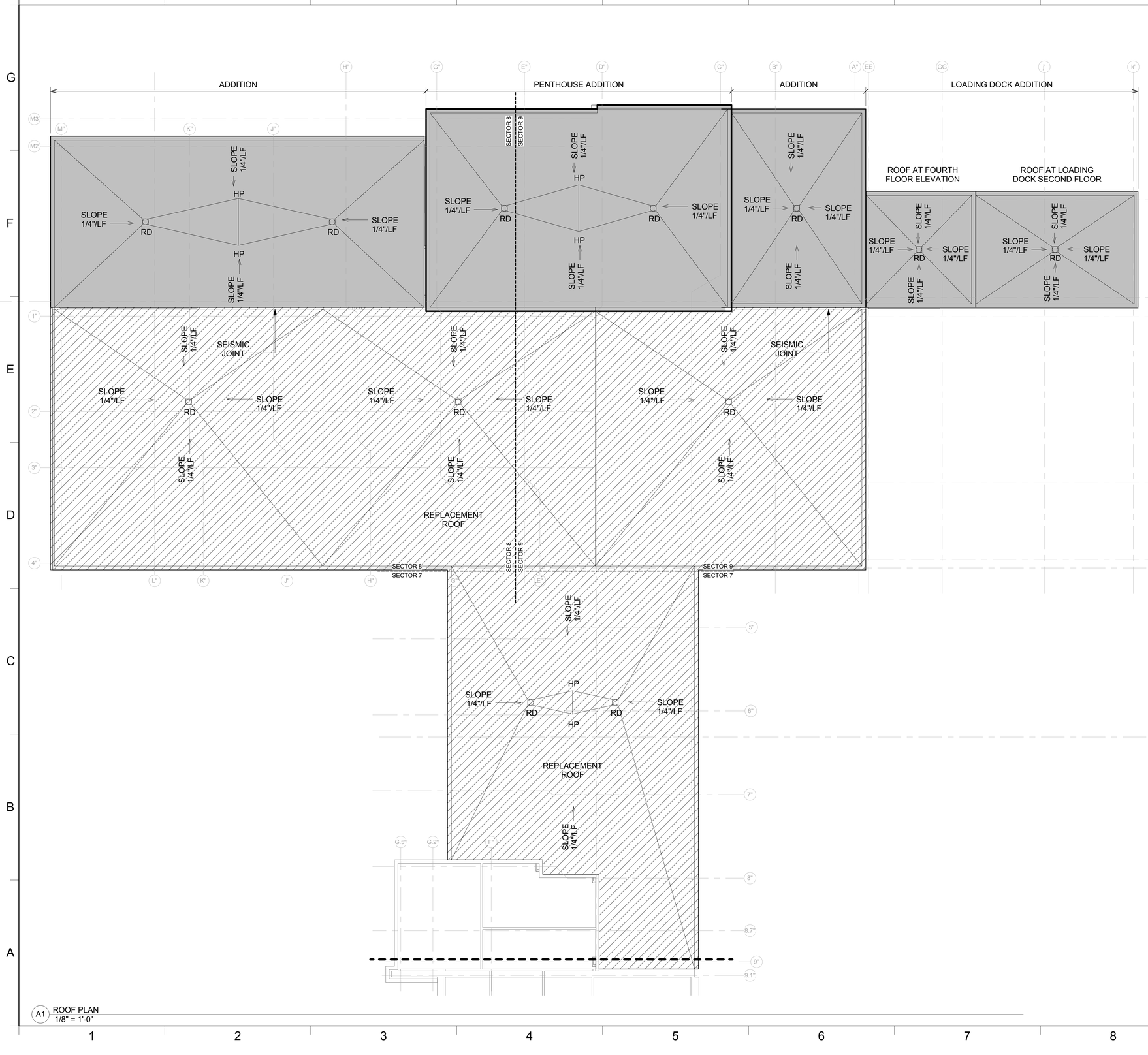
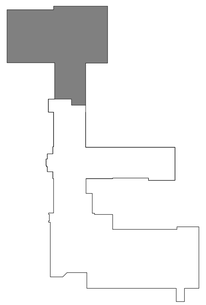


A1 ROOF PLAN
1/8" = 1'-0"

LEGEND

- EPDM ROOFING, TAPERED INSULATION OVER FLAT DECK
- REPLACEMENT ROOF, EPDM ROOFING, TAPERED INSULATION OVER FLAT DECK

KEY PLAN



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ROOF PLAN

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Engineering Report

Samaritan Medical Center

Renovations and Addition for Women's and Children's Center

Prepared for:

Samaritan Medical Center
830 Washington Street
Watertown, NY 13601

Phone No. (315) 786-6866

December 2015

Engineering Report

Samaritan Medical Center

Renovations and Addition for Women's and Children's Center

December 2015

Table of Contents

SECTION 1.0 EXECUTIVE SUMMARY
- 1.1 Purpose of Report
- 1.2 Existing Conditions
- 1.3 Proposed Project

SECTION 2.0 EXISTING CONDITIONS
- 2.1 Proposed Project Location
- 2.2 Utilities
- 2.3 Soil Conditions
- 2.4 Topography and Drainage

SECTION 3.0 PROPOSED PROJECT
- 3.1 Project Summary
- 3.2 Site Layout Description
- 3.3 Proposed Sanitary Sewer and Potable Water Flows
- 3.4 Fire Protection
- 3.5 Site Drainage and Stormwater Management
- 3.6 Traffic Patterns, Vehicle and Pedestrian Impacts
- 3.7 Parking Analysis
- 3.8 Site Lighting
- 3.9 Landscaping Summary

SECTION 4.0 PROJECT IMPLEMENTATION
- 4.1 Implementation Schedule
- 4.2 Conclusion

APPENDICES

Appendix A USGS Project Location Map

Appendix B Soils Information

Appendix C Hydrologic and Hydraulic Calculations

Appendix D Parking Analysis

SECTION 1.0
EXECUTIVE SUMMARY

1.1 Purpose of Report

This Engineering Report was prepared on behalf of Samaritan Medical Center (SMC) by Bernier, Carr and Associates (BC&A) to detail and discuss the site plan for the proposed Renovation and Addition for the Women and Children's Center. This building addition will provide dedicated maternity space on the SMC campus. A USGS map depicting the project location has been included in Appendix A.

1.2 Existing Conditions

The project site currently consists of an asphalt parking area with refuse and maintenance storage areas adjacent to Sherman Street. The parking area has an entrance to the 'former' Pratt Street on the SMC Campus. An entrance to the main SMC Building is located on the west side of the site with ADA parking spaces. A sidewalk currently runs along the west side of Sherman Street and along the north side of former Pratt Street. In addition to staff and visitor parking, this area is the location for deliveries made by large tractor trailers. A curb cut with access to Sherman Street is located on the north-west corner of the parking area, this is currently not utilized by SMC. The proposed project site is 0.90 acres in size.

1.3 Proposed Project

The proposed project is a three story Maternity Addition with a footprint of approximately 4,550 square feet and 17,900 total square feet with 29 beds. The parking area will be reconfigured to include 52 parking spaces, including 5 ADA accessible spaces. This addition also includes a loading area and reconfigured loading pattern for deliveries by heavy tractor trailers. Drop off areas for patrons will be provided. An entrance to Sherman Street is proposed to be located at the existing curb cut. Other site features include exterior site lighting, sidewalks, stormwater water quality practices, re-aligned site utilities and site landscaping.

SECTION 2.0
EXISTING CONDITIONS

2.1 Proposed Project Location

The proposed project location is the existing asphalt parking area on the corner of 'former' Pratt Street and Sherman Street at the SMC complex. A USGS project location map is attached in Appendix A depicting the project location.

2.2 Utilities

There are several existing utilities on the proposed project site. An 8-inch sewer main runs along the north-east and southwest axis of the site. Storm drainage lines that serves much of the SMC campus runs along the same axis as the sanitary sewer, additional storm drainage runs along the west side of the parking area. The main natural gas service to the SMC campus runs from Sherman Street to the main SMC Building along the northern portion of the existing parking area. Fiber optic and underground electric utilities run through the existing parking lot to the SMC Building. Water, sewer, natural gas, overhead electric lines and street lighting are also found along 'former' Pratt and Sherman Streets.

2.3 Soil Conditions

The United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) soils maps and soils data indicate that soils within the project site consist chiefly of Urban Land and Niagara silt loam soils. Niagara silt loam soils are classified as somewhat poorly drained. Ground water typically lies at a depth of 6 to 18 inches below the ground surface. Depth to any restrictive feature is greater than 80 inches.

Soil borings performed onsite reveal primarily sand and silt soils with some gravels and clays. Auger refusal ranged from 6.8 feet to as much as 16.5 feet. Soils information is included in Appendix B.

2.4 Topography and Drainage

The project site typically consists of gentle to moderate slopes ranging from 1% to 10%. Elevations on site range from 483 feet to 491 feet above mean sea level. Most onsite drainage is accomplished by storm piping and catchbasins. Much of the northern portion of the SMC Campus drainage is conveyed through the site via this storm conveyance. This drainage eventually flows to the municipal storm drainage system on Sherman Street and Pratt Street.

SECTION 3.0
PROPOSED PROJECT

3.1 Project Summary

As discussed in Section 1.3 of this report, the proposed project is a three story Maternity Addition with a footprint of approximately 4,550 square feet and 17,900 total square feet with 29 beds. The parking area will be reconfigured to include 52 parking spaces, including 5 ADA accessible spaces. This addition also includes a loading area and reconfigured loading pattern for deliveries by heavy tractor trailers. Drop off areas for patrons will be provided. An entrance to Sherman Street is proposed to be located at the existing curb cut. Other site features include exterior site lighting, sidewalks, stormwater water quality practices, re-aligned site utilities and site landscaping.

3.2 Site Layout Description

The proposed project will be a Maternity Addition with a reconstructed parking area. The proposed addition will be approximately 17,900 square feet with 29 beds. The parking area will be reconfigured to include 52 parking spaces, including 5 ADA accessible spaces. With the construction of the Addition approximately 26 parking spaces will be eliminated. Drop off areas for patrons will be provided. An entrance to Sherman Street is proposed to be located at the existing curb cut.

The drop-off area along the addition will be one way. Two parking rows to the East of Sherman Street will feature two way movements. All entrances will be two way. Other site features include exterior site lighting, sidewalks, stormwater water quality practices, re-aligned site utilities and site landscaping. These items are described in subsequent sections of this report.

3.3 Proposed Sanitary Sewer and Potable Water Flows

It is proposed that this Building Addition connect to the existing sanitary sewer main that runs through the parking area on SMC. Sanitary sewer flows were computed following the guidance provided in the NYS DEC "Design Standards for Intermediate Sized Wastewater Treatment Works, 2014". Using a per bed flow of 175 GPD at 29 beds the expected Average Daily Flow for this facility can be expected to be approximately 5,075 GPD. Using a peaking factor of 2, the Maximum Daily Flow for this facility could be in the range of 7.0 GPM. The Peak Hourly Flow, with a peaking factor of 4, could be approximately 14.1 GPM.

A proposed sanitary lateral to serve the Addition will connect to the existing sewer main that runs across the site. A portion of this sewer main will be rerouted around the addition. The proposed Addition will connect to existing potable water piping within the main SMC Building.

3.4 Fire Protection

The Maternity Addition will be fully sprinkled. The fire protection water supply is provided by an electric motor-driven fire pump rated for 1,500 gpm at 95 psi and has been tied in to supply fire protection water to existing Medical Center bulk mains and fire sprinkler systems, including the addition. A wet pipe fire sprinkler system will be installed to protect the renovation and addition areas. The system will comply with NFPA 13 parameters.

3.5 Site Drainage and Stormwater Management

Site drainage is achieved on this site through sheet flow, closed drainage piping and catch basins and overland flow. While not required as per NYS DEC Regulations, permanent stormwater management practices have been included to provide Water Quality and Run-off Reduction benefits for this site. These include landscaped rain gardens and bioretention areas.

A significant portion of the Northern and Eastern portions of the SMC Complex drain through this site. This approximately 4 acre drainage area includes the parking garage, medical office building, a portion of the main SMC Building and paved parking areas. Due to the construction of the Maternity Addition, this storm drainage will have to be rerouted through the site. Peak discharges from the addition site are expected to be the same or less after construction the addition, a summary of pre and post peak discharges from the site is provided below. Hydrologic and Hydraulic calculations for this site have been included in Appendix C.

Table 3.5

Maternity Addition Site

	1-Year Storm	10-Year Storm	100-Year Storm
	Peak Flow (CFS)	Peak Flow (CFS)	Peak Flow (CFS)
Predevelopment	1.74	3.11	5.37
Post-development	1.69	3.08	5.37

3.6 Traffic Patterns, Vehicle and Pedestrian Impacts

A traffic study has not been conducted for this proposed Maternity Addition. Trip generation rates for this proposed addition were generated utilizing the ITE Trip Generation Report. Trip estimations were made using the land use description of a Hospital as a basis for the proposed Addition with 29 beds as the applicable unit. Given these constraints, a total of 342 daily trips were calculated. Out of this, the peak hour PM trips would be 38.

Existing sidewalks adjacent to the site will be maintained as a part of this project, pedestrian access to the site is not expected to change with this project. The site parking and other features are laid out in such a manner to allow for the turning movements of the City of Watertown Fire Department Aerial Fire Truck and heavy tractor trailers. Heavy tractor trailers are the design vehicle for deliveries to the proposed loading addition.

3.7 Parking Analysis

An overall parking analysis was performed for the entire SMC Campus. Two City of Watertown code rules appear to apply to the campus. For the Samaritan Medical Center Main building the rule states 'Hospital: 1 space for each 2 beds, plus 5 spaces for each 1,000 feet of floor space dedicated to other principal or accessory uses'. Samaritan Keep Home has the following code 'Nursing Homes: 1 space for each 3 beds'.

Based on these rules and existing and proposed bed counts and square footages, the total spaces required for the entire SMC Complex is approximately 1403. The total spaces provided are approximately 1254, including 52 spaces provided by the proposed Maternity Addition. It appears that this dearth in parking is primarily due to the acquisition of the Medical Office Building to the SMC Campus. Prior to this acquisition, 1184 spaces would be required campus wide. 26 spaces are proposed to be eliminated for the proposed Addition. The parking analysis has been included in Appendix D.

3.8 Site Lighting

Site lighting for this proposed Maternity Addition will be provided such that the required lighting intensities will be provided at all parking areas, drives, entrances and sidewalks. Fixtures and luminaries will be specified that achieve these goals and also provide adequate shielding to minimize light pollution and energy usage. No more than 0.5 foot candles will be provided at property lines.

3.9 Landscaping Summary

Landscape features for this proposed Maternity Addition will generally be selected such that adequate buffering and aesthetic value is achieved. Individual street-scape trees, lawn areas and landscaped beds will predominate the roadside portions of the project site.

SECTION 4.0
PROJECT IMPLEMENTATION

4.1 Implementation Schedule

The following schedule denotes suggested key dates for implementation of various project actions. This time frame is based upon estimated dates for final planning, funding procurement, design, regulatory review, and construction, and as such, is subject to modification.

Implementation Schedule

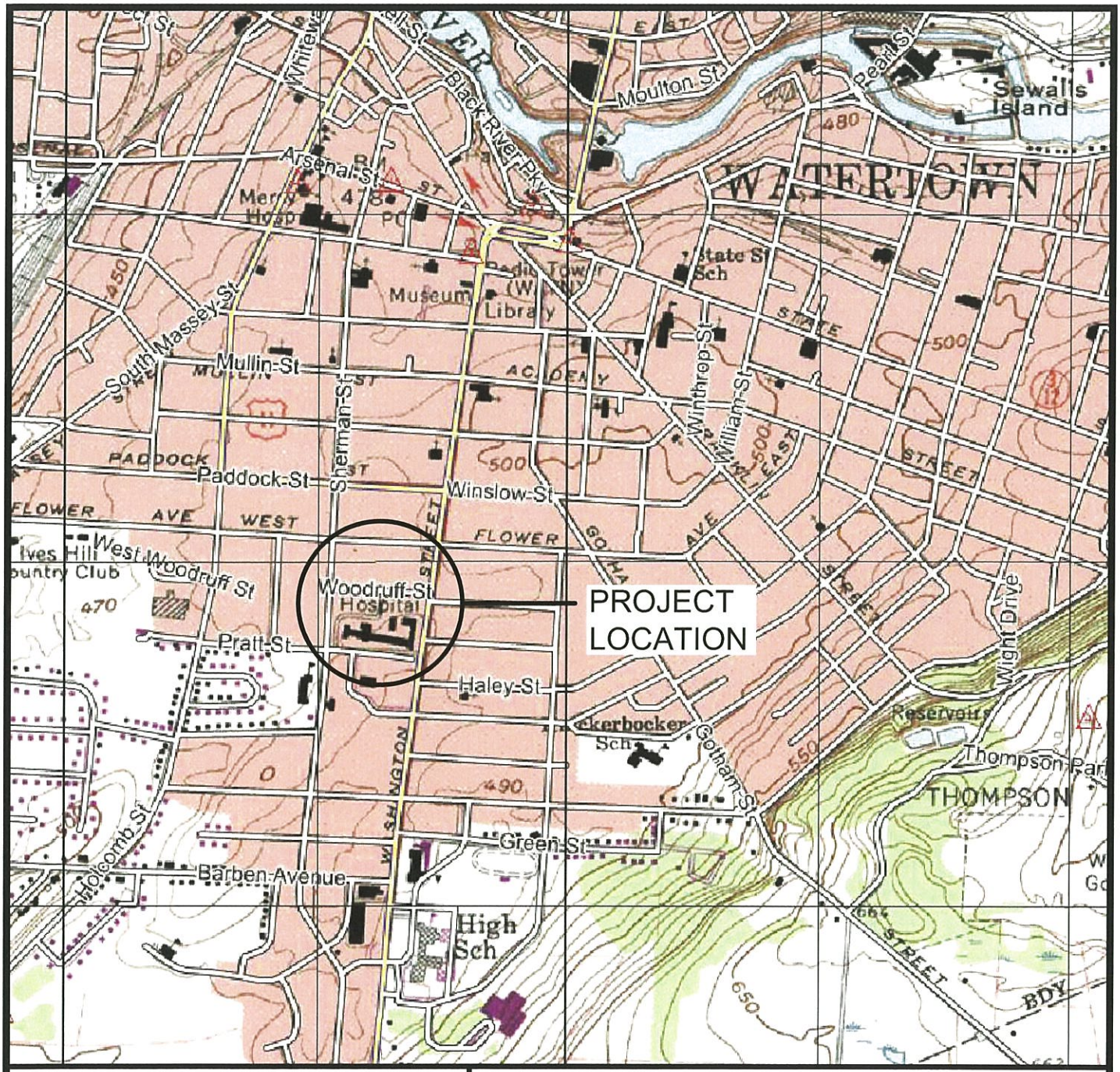
Activity	Date
Submit Site Plan Application To City of Watertown Planning	December 2015
Submit to Zoning Board of Appeals	December 2015
Receive Site Plan/Zoning Board Approval	March 2016
Receive Building Permit	June 2016
Begin Construction	June 2016
Open Maternity Addition	June 2017

4.2 Conclusion

The existing project site currently consists of an asphalt parking area with refuse and maintenance storage areas adjacent to Sherman Street. The parking area has an entrance to the 'former' Pratt Street on the SMC Campus. An entrance to the main SMC Building is located on the west side of the site with ADA parking spaces. A sidewalk currently runs along the west side of Sherman Street and along the north side of former Pratt Street. In addition to staff and visitor parking, this area is the location for deliveries made by large tractor trailers. A curb cut with access to Sherman Street is located on the north-west corner of the parking area, this is currently not utilized by SMC. The proposed project site is 0.90 acres in size.

The proposed project is a three story Maternity Addition with a footprint of approximately 4,550 square feet and 17,900 total square feet with 29 beds. The parking area will be reconfigured to include 52 parking spaces, including 5 ADA accessible spaces. This addition also includes a loading area and reconfigured loading pattern for deliveries by heavy tractor trailers. Drop off areas for patrons will be provided. An entrance to Sherman Street is proposed to be located at the existing curb cut. Other site features include exterior site lighting, sidewalks, stormwater water quality practices, re-aligned site utilities and site landscaping.

APPENDIX A
USGS PROJECT LOCATION MAP



Contract Drawing Reference No.

LOCATION AMP

Drawn By	Checked By	Revisions:
JBE	MDA	
Scale	Date	
NOT TO SCALE	12/9/2015	

File No. 2014–150

Sheet No. 1

PHASE IV: MATERNITY, PEDIATRICS IMHU, AND SUPPORT SERVICES SAMARITAN MEDICAL CENTER

BERNIER, CARR & ASSOCIATES

Bernier, Carr & Associates, Engineers, Architects and Land Surveyors, P.C.

APPENDIX B
SOILS INFORMATION

Soil Map—Jefferson County, New York
(SMC Women and Children's Addition)

Map Scale: 1:2,450 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 35 70 140 210

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Jefferson County, New York
Survey Area Data: Version 12, Sep 21, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 11, 2011—Jul 2, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Jefferson County, New York (NY045)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
CnB	Collamer silt loam, 3 to 8 percent slopes	0.7	3.6%
NoA	Niagara silt loam, 0 to 3 percent slopes	7.5	40.3%
Ur	Urban land	10.4	56.1%
Totals for Area of Interest		**18.6**	**100.0%**

Map Unit Description

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description

Jefferson County, New York

CnB—Collamer silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9smx
Mean annual precipitation: 33 to 50 inches
Mean annual air temperature: 45 to 46 degrees F
Frost-free period: 110 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Collamer and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Collamer

Setting

Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Silty and clayey glaciolacustrine deposits

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 18 inches: silt loam
H3 - 18 to 32 inches: silty clay loam
H4 - 32 to 60 inches: stratified silt loam to very fine sand to clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D

Minor Components

Unnamed soils, clayey surface texture and sandy areas

Percent of map unit: 10 percent

Niagara

Percent of map unit: 8 percent

Canandaigua

Percent of map unit: 2 percent
Landform: Depressions

NoA—Niagara silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9sqx
Mean annual precipitation: 33 to 50 inches
Mean annual air temperature: 45 to 46 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Niagara and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Niagara

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Silty and clayey glaciolacustrine deposits

Typical profile

H1 - 0 to 13 inches: silt loam
H2 - 13 to 35 inches: silt loam
H3 - 35 to 75 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D

Minor Components

Collamer

Percent of map unit: 5 percent

Canandaigua
Percent of map unit: 5 percent
Landform: Depressions

Guffin
Percent of map unit: 5 percent
Landform: Depressions

Ur—Urban land

Map Unit Setting
National map unit symbol: 9srz
Mean annual precipitation: 33 to 50 inches
Mean annual air temperature: 45 to 46 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition
Urban land: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Minor Components

Udorthents, smoothed
Percent of map unit: 10 percent
Landform: Depressions

Data Source Information

Soil Survey Area: Jefferson County, New York
Survey Area Data: Version 12, Sep 21, 2015

ATLANTIC TESTING LABORATORIES

Canton
6431 U.S. Highway 11
P.O. Box 29
Canton, NY 13617
315-386-4578 (T)
315-386-1012 (F)

September 18, 2015

Samaritan Medical Center
c/o Bernier Carr & Associates, Engineers, Architects, and Land Surveyors, PC
327 Mullin Street
Watertown, NY 13601

Attn: Mr. Mark B. Kimball, PE
Principal

Re: Subsurface Investigation and Geotechnical Evaluation Services
Proposed Addition
Samaritan Medical Center
Watertown, Jefferson County, New York
ATL Report No. CD3896E-01-09-15

Ladies and Gentlemen:

Enclosed is one digital copy of the referenced report. ATL appreciates the opportunity to provide geotechnical services for your project.

Please note that upon completion of the subsurface investigation, the boreholes were backfilled with on-site soil and the asphalt, where encountered, was patched with asphalt cold patch. It is important that the backfilled borings be monitored for settlement or subsidence. This will be the responsibility of Samaritan Medical Center. ATL assumes no liability for borehole settlement.

The soil samples obtained during this investigation will be retained for a period of six months and subsequently discarded, unless otherwise instructed.

Please contact our office should you have any questions or comments on this information, or if we may be of further service. We look forward to our continued association to obtain a successful completion of this project.

Sincerely,
ATLANTIC TESTING LABORATORIES, Limited

Adam J. Schneider, PE
Engineer

AJS/BTB/ajs

Enclosures

SUBSURFACE INVESTIGATION
AND
GEOTECHNICAL EVALUATION

PROPOSED WOMEN'S AND CHILDREN'S
ADDITION
WATERTOWN, JEFFERSON COUNTY, NEW YORK

SAMARITAN MEDICAL CENTER

PREPARED FOR: Samaritan Medical Center
c/o Bernier Carr & Associates,
Engineers, Architects, and Land Surveyors, PC
327 Mullin Street
Watertown, NY 13601

PREPARED BY: Atlantic Testing Laboratories, Limited
6431 U.S. Highway 11
P. O. Box 29
Canton, New York 13617

ATL Report No. CD3896E-01-09-15

September 18, 2015

TABLE OF CONTENTS

SECTION NUMBER		PAGE
1.0	INTRODUCTION	1
2.0	PROJECT DESCRIPTION	1
3.0	SITE SURFACE CONDITIONS	2
4.0	SUBSURFACE INVESTIGATION & SAMPLING METHODOLOGY	2
5.0	SITE SUBSURFACE CONDITIONS	2
	5.1 Soil Borings	
	5.2 Groundwater	
6.0	LABORATORY ANALYSES	4
7.0	GEOTECHNICAL ENGINEERING DISCUSSION	4
	7.1 Proposed Addition	
	7.2 Frost Protection	
	7.3 Seismic	
	7.4 General	
	7.5 Pavement Design	
8.0	GEOTECHNICAL RECOMMENDATIONS	7
	8.1 Site Preparation	
	8.2 Foundations	
	8.3 Slab-On-Grade Preparation	
	8.4 Dewatering	
	8.5 Backfill and Compaction Requirements	
	8.6 Pavement Design	
	8.7 Testing and Inspection	
9.0	SUMMARY	10

APPENDICES

A. Site Location Plan
B. Boring Location Plan
C. Subsurface Investigation Logs
D. Laboratory Test Results

SUBSURFACE INVESTIGATION
AND
GEOTECHNICAL EVALUATION

PROPOSED WOMEN'S AND CHILDREN'S ADDITION
WATERTOWN, JEFFERSON COUNTY, NEW YORK

SAMARITAN MEDICAL CENTER

1.0 INTRODUCTION

At the request of Mr. Mark B. Kimball, PE, representing Bernier, Carr & Associates, Engineers, Architects, and land Surveyors, PC (BCA), and in accordance with our proposal (ATL File No. CD998-295-06-15, dated June 17, 2015) Atlantic Testing Laboratories, Limited (ATL) performed a subsurface investigation and geotechnical evaluation for the referenced project. The subsurface investigation was performed on July 20 and 21, 2015.

The purpose of the investigation was to ascertain the general subsurface soil, bedrock, and groundwater conditions at the site of the proposed addition, to evaluate the engineering significance of these findings, and to provide recommendations related to the design and construction of foundations, slabs-on-grade, and pavement structures for the project.

The proposed addition site is located on the Sherman Street side of the existing Samaritan Medical Center located in Watertown, New York. The approximate project coordinates are N 43°57'54" latitude and W 75°54'56" longitude. A **Site Location Plan** is included in **Appendix A.** All dimensions and elevations referenced in this report are in units of feet, unless otherwise noted.

2.0 PROJECT DESCRIPTION

The proposed project will consist of constructing an addition to the Sherman Street Side of the existing hospital building. The addition will be a single-story structure with a finish floor matching the existing finish floor elevation. It is our understanding that this portion of the existing hospital is founded on shallow foundations. The project will also include reconstructing and expanding the parking lot.

3.0 SITE SURFACE CONDITIONS

The site currently supports the existing Samaritan Medical Center. The proposed addition is currently asphalt paved parking and is generally level. The existing parking lot adjacent to the proposed addition will be reconstructed and a new parking lot will be added on the corner of Woodruff Street and Sherman Street. The area of the new parking lot is occupied by two residential houses and a garage. The remainder of the area is covered with crushed stone or grass. The area of the parking lot reconstruction and expansion is generally level.

4.0 SUBSURFACE INVESTIGATION & SAMPLING METHODOLOGY

The boring locations were selected and staked in the field by representatives of BCA. The boring surface elevations were not provided to ATL. A **Boring Location Plan** is included in **Appendix B**.

Three soil borings (Boring B-1, B-2, and B-3) were advanced for the proposed addition utilizing 3¼-inch inside diameter hollow stem augers. Soil sampling and standard penetration testing was performed utilizing a 2-inch outside diameter split spoon sampler in accordance with ASTM D 1586. Soil sampling was performed continuously to a depth of 12 feet or to practical refusal, and at 5-foot intervals thereafter to boring termination at depths ranging from 6.8 to 16.5 feet. Bedrock was cored in boring B-3 from 16.5 to 21.5 feet utilizing a double tube, NX core barrel.

Seven soil borings (Boring B-4 through B-10) were advanced for the proposed parking lot reconstruction and expansion utilizing 3¼-inch inside diameter hollow stem augers. Soil sampling and standard penetration testing was performed utilizing a 2-inch outside diameter split spoon sampler in accordance with ASTM D 1586. Soil sampling was performed continuously to a depth of 10 feet, or to practical refusal, to boring termination depths ranging from 8.4 to 10 feet.

A temporary observation well was installed in boring B-3; however, water readings could not be obtained due to the well being damaged by others.

The soil samples were visually classified in the laboratory by an engineering technician in general accordance with the Burmister Soil Classification System. The split spoon sampler does not recover material larger than 1⅜-inch in nominal dimension; therefore, the soil classifications may not be representative of the entire soil matrix. The visual classifications and the standard penetration test results are presented on the **Subsurface Investigation Logs** included in **Appendix C**.

The boreholes were backfilled with on-site soils and the asphalt pavement was patched with asphalt cold patch upon completion. It is important that the backfilled borings be monitored for settlement or subsidence. This will be the responsibility of Samaritan Medical Center. ATL assumes no liability for loss or damage resulting from borehole settlement.

5.0 SITE SUBSURFACE CONDITIONS

The following description of subsurface conditions is based on the subsurface soil, bedrock, and groundwater conditions encountered during this subsurface investigation. Actual subsurface

conditions may vary across the site in both the horizontal and vertical dimensions. Detailed subsurface descriptions are provided on the Subsurface Investigation Logs.

5.1 Soil Borings

5.1.1 Addition (Borings B-1, B-2, and B-3)

The borings generally encountered 6 inches of asphalt pavement underlain by loose (N values 4 to 10) to medium compact (N values 10 to 30) silty, gravelly sand that extended to depths ranging from 3.5 to 4 feet. The silty, gravelly sand encountered in borings B-2 and B-3 appeared to be fill based on the presence of clay pipe fragments and cinders in the recovered soil samples. Underlying the loose to medium compact silty, gravelly sand fill in boring B-3 was a layer of very loose (N values less than 4) silty sand that extended to a depth of approximately 7 feet. The loose to medium compact silty, gravelly sand in borings B-1 and B-2 and the very loose silty sand in boring B-3 was underlain by medium compact to very compact (N values greater than 50) silty, gravelly sand that extended to auger refusal at depths ranging from 6.8 to 16.5 feet. Limestone bedrock encountered in boring B-3 was cored from 16.5 to 21.5 feet with a recovery of 63% and an RQD of 27%.

5.1.2 Parking Lot (Borings B-4 through B-10)

Borings B-4 through B-8 encountered 6 inches of asphalt pavement and borings B-9 and B-10 encountered 6 inches of crushed stone at the surface. Underlying the surficial materials, the borings generally encountered very loose (N values less than 4) to very compact (N values greater than 50) silty, gravelly sand with varying amounts of debris including glass, paper, clay pipe, cinders and coal fragments that extended to boring termination at depths ranging from 8.4 to 10 feet below the surface.

5.2 Groundwater

Groundwater measurements were performed during the subsurface investigation through cased and open boreholes. The received soil samples were also classified for coloration and relative moisture conditions.

Based on groundwater measurements and soil moisture content, it appears that freestanding groundwater was encountered in borings B-2 through B-8 at depths ranging from 6 to 7 feet at the time of borehole advancement. Freestanding groundwater was not encountered in borings B-1, B-9, and B-10 at the time of the investigation. Saturated soils were noted in the borings at depths ranging from 2 to 4 feet below the surface.

Since the borings were backfilled upon completion, freestanding groundwater readings may not have had sufficient time to stabilize. Perched water should be anticipated in shallow foundation and utility excavations, especially during wetter periods of the year. It is anticipated that perched water encountered in the foundation excavations may be controlled by pumping from sumps installed around the perimeter of the excavations.

Fluctuations in water levels may occur due to seasonal and climatic variations, changes in surface runoff patterns, construction activity, and subsequent development of the site along with other interrelated factors.

6.0 LABORATORY ANALYSES

Select soil samples were submitted to ATL's geotechnical laboratory for physical analyses. Water Content Determination of Soil (ASTM D 2216) was performed on 16 soil samples. The test results are located on the subsurface investigation logs included in Appendix C.

A Particle Size Analysis without Hydrometer (ASTM D 422) was performed on six soil samples. The Particle Size Distribution Curve is included in the **Laboratory Test Results, Appendix D**.

7.0 GEOTECHNICAL ENGINEERING DISCUSSION

The Geotechnical Engineering Discussion is based on information provided by BCA and the subsurface conditions outlined in this report.

The fill materials and very loose silty sand that were encountered from the surface to depths ranging from 4 to 10 feet below the surface are of primary concern with respect to the design and construction of the proposed addition and pavement structures. The fill and the very loose sand has the potential to result in future settlement of the proposed addition and pavement structures.

7.1 Proposed Addition

7.1.1 Site Work

Site work will require the removal of asphalt pavement within the footprint of the proposed addition. The slab subgrade should be prepared to approximately 1.2 feet below the finish floor elevation (assuming a 6-inch concrete slab-on-grade and a minimum 8 inches of Engineered Structural Fill subbase).

Based on the current site topography, minor cuts and fills are anticipated for the project. Prior to the placement of controlled fill, the subgrade soils should be proof compacted with a minimum 10-ton roller and proof rolled in accordance with Geotechnical Recommendation 8.3.2. The subgrade compaction and proof rolling should be conducted under the observation of a Geotechnical Engineer. Any areas noted to weave or deflect, or that contain excessive amounts of deleterious fill, should be excavated to stable material, at the direction of the Geotechnical Engineer, and replaced with compacted Granular Fill.

All new fill utilized within the building footprint should consist of Granular Fill placed and compacted in accordance with Geotechnical Recommendations 8.5.4 and 8.5.5.

7.1.2 Building Foundations

Based on the subsurface soil and groundwater conditions encountered during ATL's subsurface investigation, the site appears suitable for the use of shallow foundations to support the proposed addition provided there is no deleterious fill material below the footing elevation and the very loose sand encountered in the area of boring B-3 is over excavated and replaced. Footings requiring frost protection should be founded a minimum of 5 feet below final exterior grade. Interior foundations in heated areas should be founded a minimum of 2 feet below the slab-on-grade.

All foundation excavations should be continuously monitored by a Geotechnical Engineer to verify subgrade stability and to ensure that adequate soil bearing capacity is obtained. It will be necessary to over excavate the very loose silty sand that was encountered in the area of boring B-3 from a depth of approximately 4 to 7 feet below the existing surface. The over excavation should be replaced with Granular Fill that is placed and compacted in accordance with Geotechnical Recommendations 8.5.4 and 8.5.5.

Footing subgrades that become saturated or unstable during construction should be over excavated 6 inches and a 6-inch layer of NYSDOT Number 2, crushed stone should be placed on the subgrade soils. The Number 2, crushed stone should be compacted with four passes of a dual-drum walk-behind vibratory roller; a Wacker DPU 6055 vibrating plate tamper; or equivalent, under the direction of the Geotechnical Engineer. The NYSDOT Number 2, crushed stone will provide a stable working surface and dewatering media if ground or surface water enters the excavation.

Care must be exercised when excavating in the vicinity of adjacent buildings and utilities that are to remain in-place.

New footings placed adjacent to existing foundations should be placed at the same elevation to avoid overstressing the existing foundation walls. Underpinning of existing structures may be necessary or step footings may be utilized to achieve the proposed footing elevation for the new structures.

The on-site soils may be utilized as exterior foundation backfill, provided all deleterious organic and oversize material (particles larger than 4 inches in diameter) are removed and the material is properly moisture conditioned. Granular Fill should be utilized if the on-site soils cannot be properly moisture conditioned. Backfill utilized inside the building footprint should consist of Granular Fill. All new fill should be placed in accordance with Geotechnical Recommendations 8.5.4 and 8.5.5.

7.1.3 Soil Bearing Capacity and Settlement

Shallow foundations supported on stable native soils, compacted Granular Fill, and/or compacted NYSDOT Number 2, crushed stone that overlies stable native soils may be designed using a maximum allowable soil bearing capacity of 3000 psf, provided the recommendations presented in this report are followed.

Continuous strip footings should be a minimum 18 inches wide and individual spread footings a minimum 36 inches wide.

A detailed settlement analysis was outside the scope of this investigation; however, total and differential post construction settlement less than 1-inch and ½-inch, respectively, are estimated.

7.1.4 Slabs-on-Grade

Concrete slabs-on-grade should be supported on a minimum of 8 inches of Engineered Structural Fill subbase that overlies properly prepared subgrade soils. Slabs-on-grade may be designed using a modulus of subgrade reaction of 150 pci. Areas to receive slabs-on-grade

should be proof rolled in accordance with Geotechnical Recommendation 8.3.2, prior to placing controlled fill.

A vapor retarder should be installed beneath slabs with moisture sensitive floor coverings. The vapor retarder should be installed in accordance with current ACI 302.1 recommendations.

7.2 Frost Protection

Shallow foundations requiring frost protection should be founded a minimum of 5 feet below final exterior grade.

7.3 Seismic

Based on the field standard penetration test results, the seismic site classification for the project site has been determined to be D. The maximum considered earthquake spectral response acceleration for short periods, (S_{MS}) is 0.313g and at 1-second period, (S_{M1}) is 0.181g as determined in accordance with the Building Code of New York State, 2010.

7.4 General

Construction traffic should be limited on exposed subgrades, especially during wetter periods of the year. The in-situ subgrade soils are moisture sensitive and may become unstable under repetitive construction traffic. The very loose granular soils encountered on the site will be suceptible to sidewall sloughing in open excavations.

Perched groundwater should be anticipated in shallow foundation and utility excavations, especially during wetter periods.

The soil parameters presented in the following table may be used for the following backfill materials.

Table of Soil Properties

Soil Property	Granular Fill	Engineered Structural Fill
Angle of Internal Friction (°)	32	34
Active Earth Coefficient (K_a)*	0.31	0.28
At Rest Earth Coefficient (K_o)*	0.47	0.44
Passive Earth Coefficient (K_p)*	3.25	3.54
Ultimate Coefficient of Sliding Friction	0.44	0.47
Wet Unit Weight (pcf)	130-140	135-145

*The Rankine earth pressure coefficients are for level backfill placed in a fully drained condition.

7.5 Pavement Design

7.5.1 Pavement Site Work

Site work will require the removal of the existing buildings, asphalt pavement, topsoil and organic material. It is recommended that the existing building foundations be completely

removed. The excavations to remove the foundations should be backfilled with compacted Granular Fill. The pavement subgrade soils should be proof-compacted with a minimum 10-ton vibratory roller, under the direction of the Geotechnical Engineer. The pavement subgrade soils should also be proof rolled in accordance with Geotechnical Recommendation 8.6.1.

The on-site soils are moderately moisture moderately sensitive and frost susceptible. To minimize potential frost action in the pavement structures, a minimum of 1 foot of Granular Fill is recommended beneath the Granular Subbase. If this is not possible, based on economic considerations, the depth of Granular Fill can be reduced. If the depth of Granular Fill is reduced, premature pavement deterioration and/or maintenance should be anticipated.

Proper subsurface drainage and control of surface water will be important to the longevity of the pavement structures.

8.0 GEOTECHNICAL RECOMMENDATIONS

The following recommendations are presented as the minimum requirements for the design, planning, and construction of the foundation systems, slabs-on-grade, and pavement structures. The concepts and geotechnical engineering considerations presented in the preceding sections must be considered in project design and construction.

8.1. Site Preparation

8.1.1. Site work should be scheduled during drier portions of the year to avoid possible delays and additional costs associated with construction during the wet seasons.

8.1.2. The addition and parking lot subgrades should be prepared as discussed in Section 7.1.1 and 7.5.1 of the Geotechnical Engineering Discussion.

8.1.3. Site surface grading should be designed to convey surface water away from the site structures and pavement.

8.1.4. The contractor must follow excavation safety practices as mandated by 29 CFR Part 1926 (OSHA) and by applicable state regulations.

8.2. Foundations

8.2.1. All foundation excavations should be monitored by a Geotechnical Engineer to verify the stability and soil bearing capacity of the foundation subgrades.

8.2.2. Exterior footings should be founded a minimum of 5 feet below final exterior grade to provide adequate frost protection. Interior footings for heated building areas should be founded a minimum of 2 feet below the top of slab-on-grade elevation.

8.2.3. Shallow foundations founded on stable native soil, compacted Granular Fill, and/or compacted NYSDOT Number 2, crushed stone that overlies stable native soils, may be designed using a maximum allowable soil bearing capacity of 3000 psf, provided the recommendations presented in this report are followed.

8.3. Slab-on-Grade Preparation

8.3.1. A minimum of 8 inches of Engineered Structural Fill Subbase, conforming to Geotechnical Recommendation 8.5.3, should be placed to support new concrete slabs-on-grade. All fill material should be placed and compacted in accordance with Geotechnical Recommendations 8.5.4 and 8.5.5.

8.3.2. After performing cuts and prior to placing Granular and Engineered Structural Fill subbase, areas to receive slabs-on-grade should be compacted with a minimum 10-ton roller, in conditions of low moisture, and proof rolled. Proof rolling should be conducted using a tandem axle truck with a minimum gross weight of 40,000 lbs. Rollers or low ground pressure construction equipment shall not be used for proof rolling. The proof rolling must be conducted under the observation of the Geotechnical Engineer. Any areas noted to weave or deflect should be excavated to stable material, at the direction of the Geotechnical Engineer, and replaced with compacted Granular Fill.

8.4. Dewatering

8.4.1. It will be the contractor's responsibility to maintain adequate water control at all times. Project specifications should clearly indicate that standing water, and/or saturated, unstable soil conditions will not be tolerated in areas to receive foundations or utilities. The project specifications should state that the contractor will not be reimbursed for extras related to the control of water.

8.4.2. All dewatering activities should comply with New York State Department of Environmental Conservation (NYSDEC) storm water discharge requirements and/or local regulations for construction.

8.5. Backfill and Compaction Requirements

8.5.1. The on-site soils, excluding deleterious organics and oversize material (particles larger than 4 inches in diameter), may be used for general site fill and exterior foundation wall backfill, provided the soil is placed and compacted in accordance with Geotechnical Recommendations 8.5.4 and 8.5.5. Granular Fill should be utilized as backfill within the building footprint.

8.5.2. **Granular Fill** should consist of a clean, screened, crushed, or bank-run gravel conforming to the following gradation:

Sieve Size	Percent Passing
4"	100
¼"	35-65
#200	0-10

8.5.3. Engineered Structural Fill should consist of a screened, crushed gravel or crushed ledge rock conforming to the following gradation:

Sieve Size	Percent Passing
3"	100
1"	80 - 95
½"	45 - 75
#4	30 - 60
#40	10 - 40
#200	0 - 7

8.5.4. All fill and backfill should be placed and compacted in lifts not exceeding eight inches in loose thickness, at a moisture content of ± 2% of the Optimum Moisture Content, and to densities in excess of 95%, as determined by ASTM D1557, or as directed by the Geotechnical Engineer.

8.5.5. Compaction should be performed with vibratory rollers unless there is concern for damage to adjacent structures or underground utilities.

8.6 Pavement Design

8.6.1 Where possible, areas to receive pavement structures should be proof rolled. Proof rolling should be conducted using a tandem axle truck with a minimum gross weight of 40,000 lbs. Rollers or low ground pressure construction equipment shall not be used for proof rolling. The proof rolling must be conducted under the observation of the Geotechnical Engineer. Any areas noted to weave or deflect should be excavated to stable material, at the direction of the Geotechnical Engineer, and replaced with Granular Fill.

8.6.2 Light Duty Asphalt Pavement (Passenger Cars and Light Trucks) structures should consist of the following:

Thickness	Course	NYSDOT Marshall Mixes[3]	NYSDOT Superpave Mixes
1 ½"	Bituminous Top Course	Section 403, Type 7F	Section 402, 9.5 mm, F3
2 ½"	Bituminous Intermediate Course	Section 403, Type 3	Section 402, 19.0 mm, F9
8"	Granular Subbase[1]	Section 304, Type 2	Section 304, Type 2
12"	Granular Fill[2]	Recommendation 8.5.2	Recommendation 8.5.2

(1) The product of crushed ledge rock.
(2) The thickness may be reduced based on the economic considerations; however, should be a minimum of 8 inches.
(3) NYSDOT 2008 Standard Specification

8.6.3 Heavy Duty Asphalt Pavement (Trucks) structures should consist of the following:

Thickness	Course	NYSDOT Marshall Mixes[3]	NYSDOT Superpave Mixes
1 ½"	Bituminous Top Course	Section 403, Type 7F	Section 402, 9.5 mm, F3
3 ½"	Bituminous Intermediate Course	Section 403, Type 3	Section 402, 19.0 mm, F9
12"	Granular Subbase[1]	Section 304, Type 2	Section 304, Type 2
12"	Granular Fill[2]	Recommendation 8.5.2	Recommendation 8.5.2

(1) The product of crushed ledge rock.
(2) The thickness may be reduced based on the economic considerations; however, should be a minimum of 8 inches.
(3) NYSDOT 2008 Standard Specification

8.6.4 The Granular Subbase and Granular Fill should be placed and compacted in accordance with Geotechnical Recommendations 8.5.4 and 8.5.5.

8.6.5 The bituminous pavements should be compacted with a vibratory roller to densities in excess of 92% of the maximum theoretical specific gravity of bituminous paving materials as determined by ASTM D 2041.

8.6.6 It is anticipated there will be future revisions to the New York State DOT specifications for bituminous mixtures. Prior to bidding this project, ATL must review the final pavement specifications.

8.7 Testing and Inspection

8.7.1 Subgrade preparation, foundation installations, and slab-on-grade subbase placement and compaction must be continuously observed by an experienced Geotechnical Engineer, and/or their representative, familiar with the subsurface conditions and analysis described in this report. The engineer will be required to assess any unusual conditions and to ensure that adequate bearing capacities and proper foundation installation requirements are achieved.

8.7.2 All backfilling, placement of fill, compaction of in-situ soils, and concrete construction should be inspected by an Independent Testing Laboratory, which conforms to ASTM E-329, "The Standard Practice for use in the Evaluation of Testing and Inspection Agencies as Used in Construction". It should be the Independent Testing Laboratory's responsibility to monitor construction practices to determine if they are in accordance with the project documents.

8.7.3 The final foundation plans and project specifications should be reviewed by our office to ensure that there has not been a misinterpretation of this report.

9.0 SUMMARY

The subsurface investigation logs and this report in its entirety should be provided to the contractors for information and interpretation. The subsurface investigation logs may not be representative of the entire site subsurface conditions, but only what was encountered at the

individual test locations at the time of the investigation. The subsurface soil, bedrock, and groundwater conditions may be different from those described on the subsurface investigation logs and summarized in this report.

This report was prepared to present the findings of our subsurface investigation and engineering evaluation, and to outline concepts to be utilized in foundation design and construction. These concepts may require alterations to meet the specific design and economic considerations for this project.

Prepared by:

Adam J. Schneider, PE
Engineer

Reviewed by:

Brian T. Barnes, PE
Senior Engineer

AJS/BTB/ajs

APPENDIX A

SITE LOCATION PLAN

Site Location Map	Drawn by: AJS	Scale: Not to scale	Project No.: CD3896	Date: August 2015
Proposed Additional Samaritan Medical Center Watertown, New York	***ATLANTIC TESTING LABORATORIES*, Limited**			
	Albany, NY	Binghamton, NY	Canton, NY	Elmira, NY	Plattsburgh, NY
	Poughkeepsie, NY	Syracuse, NY	Rochester, NY	Utica, NY	Watertown, NY

APPENDIX B

BORING LOCATION PLAN

PHASE IV RENOVATIONS & ADDITIONS PROJECT

SAMARITAN MEDICAL CENTER

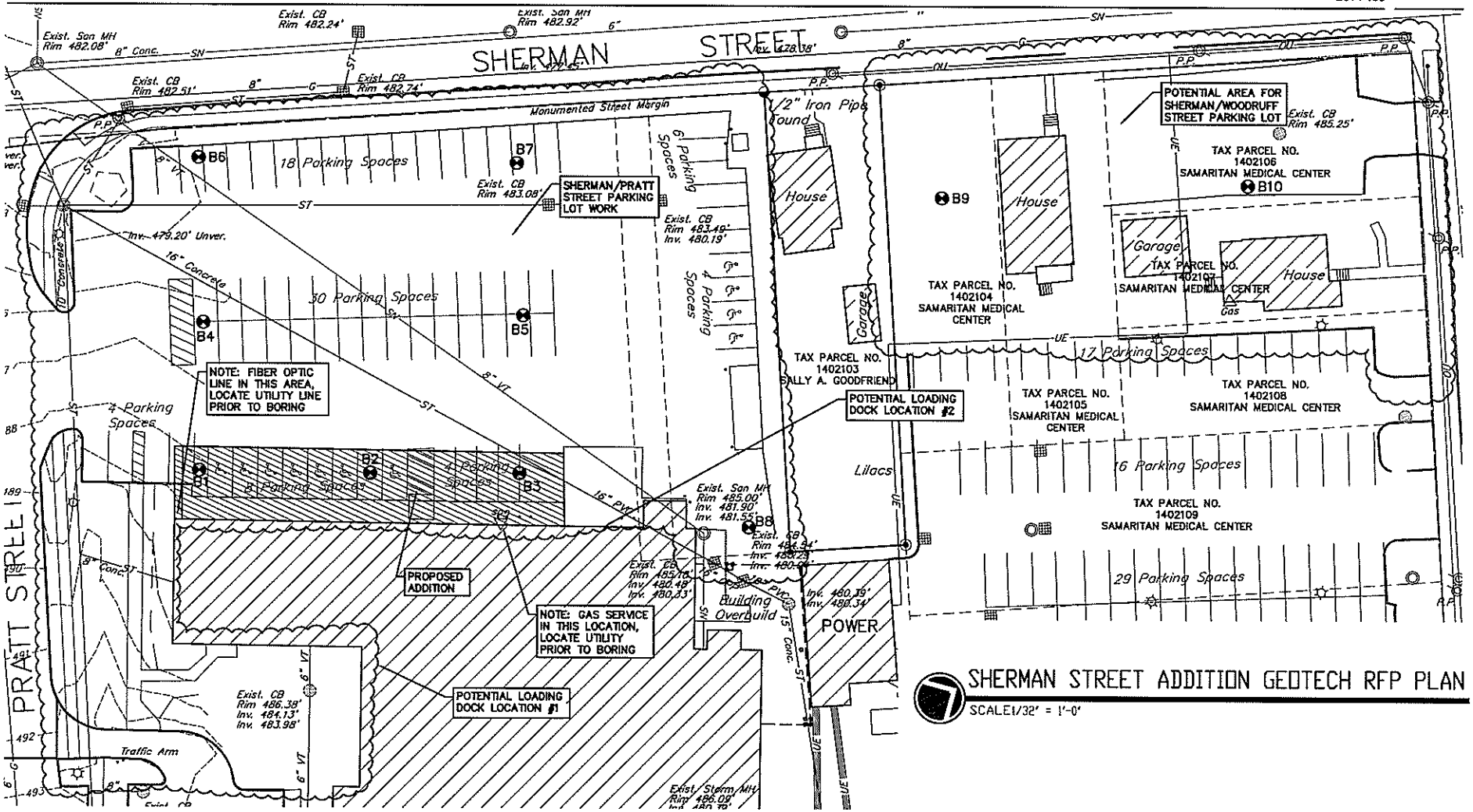
830 WASHINGTON ST, WATERTOWN, NY

SHERMAN STREET ADDITION GEOTECH RFP PLAN

06/11/15

2014-150

0-01



HOLT ARCHITECTS P.C.
217 N Aurora Street, Ithaca, NY 14850
p 607 273 2000 f 607 273 0475 http://www.holt.com

BERNIER, CARR & ASSOCIATES
327 Mullin Street, Watertown, NY 13601
p 315 782 8130 f 315 782 7192

APPENDIX C

SUBSURFACE INVESTIGATION LOGS

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: CD3896E-01-09-15

Client: Samaritan Medical Center

Boring Location: See Boring Location Plan

Project: Subsurface Investigation

Addition

Women's and Children's Addition

Watertown, New York

Start Date: 7/21/2015 Finish Date: 7/21/2015

Boring No.: B-1 Sheet 1 of 1

Groundwater Observations

Date	Time	Depth	Casing
7/21/2015	AM	DRY	4.0'

Coordinates

Latitude

Longitude

Sampler Hammer

Weight: 140 lbs.

Fall: 30 in.

Hammer Type: Automatic

Ground Elev.:

Boring Advance By:

3 1/4" Auger

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
0	AUGER	1	0.0	2.0	SS	25 8 5 3	0.5	6" ASPHALT PAVEMENT	6
1								Brown cmf SAND; little mf GRAVEL; trace SILT (moist, non-plastic)	
2		2	2.0	4.0	SS	5 3 9 18		Brown cmf SAND; and SILT; trace f GRAVEL (wet, non-plastic)	10
3							3.5	w = 6.9%	
4		3	4.0	5.2	SS	21 27 50/2"		Brown c-mf+ SAND; some SILT; some mf GRAVEL (wet, non-plastic) COBBLE Fragments w = 4.7%	10
5									
6		4	6.0	6.8	SS	44 50/3"	6.8	Brown cmf SAND; and SILT; little f GRAVEL (wet, non-plastic) w = 4.9%	6
7								Boring terminated at 6.8 feet due to auger refusal on possible boulder or bedrock.	
8									
9								Notes:	
10								1. Borehole backfilled with onsite soils and patched at the surface with asphalt cold patch.	
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: Tyler Weston; Josh Miller

Inspector:

ATL-LOG1 CD3896 SAMARITAN MEDICAL CENTER - WATERTOWN, NEW YORK.GPJ LOG-WELL.GDT 9/8/15

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: CD3896E-01-09-15

Client: Samaritan Medical Center

Boring Location: See Boring Location Plan

Project: Subsurface Investigation

Parking Lot

Women's and Children's Addition

Watertown, New York

Start Date: 7/21/2015 Finish Date: 7/21/2015

Boring No.: B-10 Sheet 1 of 1

Groundwater Observations

Date	Time	Depth	Casing
7/21/2015	AM	DRY	OUT

Coordinates

Latitude

Longitude

Sampler Hammer

Weight: 140 lbs.

Fall: 30 in.

Hammer Type: Automatic

Ground Elev.:

Boring Advance By:

3 1/4" Auger

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
1	AUGER	1	0.0	2.0	SS	23 9 5 6	0.5	6" CRUSHED STONE	12
2							2.0	Brown and Grey SILT; and mf GRAVEL; some cmf SAND; trace CLAY (saturated, very slightly plastic)	
3		2	2.0	4.0	SS	5 4 6 5		Brown c-mf+ SAND; and SILT (saturated, non-plastic) w = 27.6%	14
4		3	4.0	6.0	SS	7 6 6 8		Similar Soil (saturated, non-plastic)	18
6		4	6.0	8.0	SS	5 8 9 7		Similar Soil (saturated, non-plastic) COBBLE Fragments	16
8		5	8.0	10.0	SS	7 7 8 7		Similar Soil (saturated, non-plastic)	14
10							10.0	Boring terminated at 10.0 feet.	
								Notes: 1. Borehole backfilled with onsite soils.	

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: Tyler Weston; Josh Miller

Inspector:

ATL-LOG1 CD3896 SAMARITAN MEDICAL CENTER - WATERTOWN, NEW YORK.GPJ LOG-WELL.GDT 9/8/15

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: CD3896E-01-09-15

Client: Samaritan Medical Center

Boring Location: See Boring Location Plan

Project: Subsurface Investigation

Addition

Women's and Children's Addition

Watertown, New York

Start Date: 7/20/2015 Finish Date: 7/20/2015

Boring No.: B-2 Sheet 1 of 1

Groundwater Observations

Date	Time	Depth	Casing
7/20/2015	PM	6.0'	OUT

Coordinates

Latitude _____

Longitude _____

Sampler Hammer

Weight: 140 lbs.

Fall: 30 in.

Hammer Type: Automatic

Ground Elev.: _____

Boring Advance By:

3 1/4" Auger

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Recovery (inches)
1	AUGER	1	0.0	2.0	SS	21 6 4 2	0.5	6" ASPHALT PAVEMENT	12
2								Dark Brown cmf SAND; some mf GRAVEL; little ASPHALT Fragments; trace SILT (wet, non-plastic) FILL	
3		2	2.0	4.0	SS	4 4 3 4		Brown cmf SAND; some SILT; little DEBRIS (vitrified clay pipe); trace f GRAVEL (saturated, non-plastic) FILL w = 12.1%	6
4							4.0		
5		3	4.0	6.0	SS	16 14 13 15		Brown cmf SAND; and SILT; little mf GRAVEL (wet, non-plastic) COBBLE Fragments w = 5.7%	14
6									
7		4	6.0	7.8	SS	5 21 46 50/4"		Brown cmf SAND; and SILT; trace f GRAVEL; trace CLAY (wet, very slightly plastic) w = 6.0%	12
8									
9		5	8.0	9.2	SS	39 44 50/2"		Brown cmf SAND; and SILT; little f GRAVEL (wet, non-plastic) w = 5.1%	10
10									
11		6	10.0	10.7	SS	32 50/2"	10.7	Brown cmf SAND; some SILT; little f GRAVEL; trace CLAY (saturated, very slightly plastic)	6
12									
13								Boring terminated at 10.7 feet due to auger refusal on possible boulder or bedrock.	
14									
15								Notes:	
16								1. Borehole backfilled with onsite soils and patched at the surface with asphalt cold patch.	
17									
18									
19									
20									
21									
22									
23									
24									
25									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: Tyler Weston; Josh Miller

Inspector: _____

ATL-LOG1 CD3896 SAMARITAN MEDICAL CENTER - WATERTOWN, NEW YORK.GPJ LOG-WELL.GDT 9/8/15

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: CD3896E-01-09-15

Client: Samaritan Medical Center

Boring Location: See Boring Location Plan

Project: Subsurface Investigation
Women's and Children's Addition
Watertown, New York

Addition

Start Date: 7/20/2015 Finish Date: 7/20/2015

Boring No.: B-3 Sheet 1 of 1

Groundwater Observations

Date	Time	Depth	Casing
7/20/2015	AM	*6.0'	15.0'

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: 140 lbs.
Fall: 30 in.
Hammer Type: Automatic

Ground Elev.:

Boring Advance By: 3 1/4" Auger

*May be affected by water induced during coring.

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine, m - medium, c - coarse; and - 35-50%, some - 20-35%, little - 10-20%, trace - 0-10%)	Recovery (Inches)
0	AUGER	1	0.0	2.0	SS	32 13 7 5	0.5	6" ASPHALT PAVEMENT	12
1								Brown cmf SAND; some SILT; some cmf GRAVEL; little ASPHALT Fragments (moist, non-plastic) FILL	
2		2	2.0	4.0	SS	7 4 3 4		Dark Brown cmf SAND; and CINDERS; some SILT; trace DEBRIS (vitrified clay pipe); trace f GRAVEL (moist,	4
3							4.0	non-plastic) FILL w = 11.7%	
4		3	4.0	6.0	SS	1 1 1 2		Brown c-mf+ SAND; some SILT; trace f GRAVEL (saturated, non-plastic) w = 19.8%	10
5									
6		4	6.0	8.0	SS	2 1 3 3		Brown cmf SAND; and SILT; little CLAY; trace f GRAVEL (saturated, slightly plastic) w = 20.9%	12
7									
8		5	8.0	9.3	SS	7 21 50/4"	8.5		12
9								Light Brown cmf SAND; some SILT; little mf GRAVEL (saturated, non-plastic) Possible WEATHERED ROCK Fragments w = 7.8%	
10		6	10.0	11.3	SS	53 70 100/3"			10
11								Light Brown SILT; and cmf SAND; some mf GRAVEL (wet, non-plastic) w = 4.8%	
12									
13									
14									
15		7	15.0	15.3	SS	50/3"		Brown cmf SAND; little mf GRAVEL; little SILT; little CLAY	1
16							16.5	(saturated, very slightly plastic) Possible WEATHERED ROCK Fragments	
17	NX CORE		16.5	21.5	NX	RUN 1			38
18								Grey LIMESTONE	
19								38" or 63% Recovery	
20								5 Pieces (30") - 21% Chips and Fragments	
21							21.5	3 Pieces longer than 4" (16") - RQD = 27%	
22								Boring terminated at 21.5 feet.	
23								Notes:	
24								1. A temporary observation well was installed within the borehole to a depth of 21.5 feet.	
25									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: Tyler Weston; Josh Miller

Inspector:

ATL-LOG1 CD3896 SAMARITAN MEDICAL CENTER - WATERTOWN, NEW YORK.GPJ LOG-WELL.GDT 9/8/15

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: CD3896E-01-09-15

Client: Samaritan Medical Center

Boring Location: See Boring Location Plan

Project: Subsurface Investigation

Parking Lot

Women's and Children's Addition

Watertown, New York

Start Date: 7/20/2015 Finish Date: 7/20/2015

Boring No.: B-4 Sheet 1 of 1

Groundwater Observations

Date	Time	Depth	Casing
7/20/2015	AM	6.0'	OUT

Coordinates

Latitude

Longitude

Sampler Hammer

Weight: 140 lbs.

Fall: 30 in.

Hammer Type: Automatic

Ground Elev.:

Boring Advance By:

3 1/4" Auger

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
1	AUGER	1	0.0	2.0	SS	23 5 3 3	0.5	6" ASPHALT PAVEMENT	6
2							2.0	Brown GRAVEL; little cmf SAND; trace SILT (moist, non-plastic)	
3		2	2.0	4.0	SS	6 4 3 5		Dark Brown c-mf+ SAND; some mf GRAVEL; little SILT (saturated, non-plastic) COBBLE Fragments	2
4									
5		3	4.0	6.0	SS	7 9 16 11	5.0	w = 9.5%	14
6								Brown cmf SAND; and cmf GRAVEL; little SILT (saturated, non-plastic) COBBLE Fragments	
7		4	6.0	6.8	SS	37 50/4"		Light Brown cmf SAND; and SILT; little mf GRAVEL (wet, non-plastic) Possible WEATHERED ROCK Fragments	8
8							8.4		
9		5	8.0	8.4	SS	50/5"		Light Brown cmf SAND; and SILT; little f GRAVEL (wet, non-plastic) Possible WEATHERED ROCK Fragments	4
10								Boring terminated at 8.4 feet due to auger refusal on possible boulder or bedrock.	
11									
12								Notes:	
13								1. Borehole backfilled with onsite soils and patched at the surface with asphalt cold patch.	
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

f - fine; m - medium; c - coarse

and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: Tyler Weston; Josh Miller

Inspector:

ATL-LOG1 CD3896 SAMARITAN MEDICAL CENTER - WATERTOWN, NEW YORK.GPJ LOG-WELL.GDT 9/8/15

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: CD3896E-01-09-15

Client: Samaritan Medical Center

Boring Location: See Boring Location Plan

Project: Subsurface Investigation

Parking Lot

Women's and Children's Addition

Watertown, New York

Start Date: 7/20/2015 Finish Date: 7/20/2015

Boring No.: B-5 Sheet 1 of 1

Groundwater Observations

Date	Time	Depth	Casing
7/20/2015	PM	6.0'	OUT

Coordinates

Latitude

Longitude

Sampler Hammer

Weight: 140 lbs.

Fall: 30 in.

Hammer Type: Automatic

Ground Elev.:

Boring Advance By:

3 1/4" Auger

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine, m - medium, c - coarse; and - 35-50%, some - 20-35%, little - 10-20%, trace - 0-10%)	Recovery (Inches)
0	AUGER	1	0.0	2.0	SS	23 9 5 5	0.5	6" ASPHALT PAVEMENT	16
1								Mottled Dark Brown cmf SAND; and SILT; little mf GRAVEL (wet, non-plastic) FILL	
2		2	2.0	4.0	SS	6 8 7 5		Mottled Dark Brown cmf SAND; and SILT; trace f GRAVEL (wet, non-plastic) FILL	10
3									
4		3	4.0	6.0	SS	4 3 2 4		Dark Brown cmf SAND; little SILT; trace f GRAVEL (saturated, non-plastic) FILL	6
5									
6		4	6.0	8.0	SS	4 3 2 2		Brownish-Grey cmf SAND; some mf GRAVEL; little SILT (saturated, non-plastic) FILL	8
7									
8		5	8.0	10.0	SS	3 4 3 3		Greyish-Black cmf SAND; and SILT; little DEBRIS (vitrified clay pipe) (saturated, non-plastic) FILL	10
9									
10							10.0	Boring terminated at 10.0 feet.	
11									
12								Notes:	
13								1. Borehole backfilled with onsite soils and patched at the surface with asphalt cold patch.	
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: Tyler Weston; Josh Miller

Inspector:

ATL-LOG1 CD3896 SAMARITAN MEDICAL CENTER - WATERTOWN, NEW YORK.GPJ LOG-WELL.GDT 9/8/15

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: CD3896E-01-09-15

Client: Samaritan Medical Center

Boring Location: See Boring Location Plan

Project: Subsurface Investigation

Parking Lot

Women's and Children's Addition

Watertown, New York

Start Date: 7/21/2015 Finish Date: 7/21/2015

Boring No.: B-6 Sheet 1 of 1

Groundwater Observations

Date	Time	Depth	Casing
7/21/2015	AM	7.0'	OUT

Coordinates

Latitude

Longitude

Sampler Hammer

Weight: 140 lbs.

Fall: 30 in.

Hammer Type: Automatic

Ground Elev.:

Boring Advance By:

3 1/4" Auger

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine, m - medium, c - coarse; and - 35-50%, some - 20-35%, little - 10-20%, trace - 0-10%)	Recovery (Inches)
1	AUGER	1	0.0	2.0	SS	23 8 6 4	0.5	6" ASPHALT PAVEMENT	6
2		2	2.0	4.0	SS	3 4 4 3		Brown cmf SAND; some SILT; little mf GRAVEL; trace CLAY (saturated, very slightly plastic) FILL	3
4		3	4.0	6.0	SS	4 4 3 4		Brown cmf GRAVEL; some cmf SAND; little SILT; little DEBRIS (glass); trace CLAY (saturated, very slightly plastic) FILL, COBBLE Fragments	4
6		4	6.0	8.0	SS	2 2 3 2		Blackish-Brown cmf SAND; some DEBRIS (ceramic, glass, vitrified clay pipe); trace CLAY (saturated, very slightly plastic) FILL	6
8		5	8.0	10.0	SS	3 2 2 2		Grey cmf SAND; and SILT; little mf GRAVEL; trace DEBRIS (vitrified clay pipe); trace CLAY (saturated, very slightly plastic) FILL	8
10							10.0	Boring terminated at 10.0 feet.	

Notes:

1. Borehole backfilled with onsite soils and patched at the surface with asphalt cold patch.

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: Tyler Weston; Josh Miller

Inspector:

ATL-LOG1 CD3896 SAMARITAN MEDICAL CENTER - WATERTOWN, NEW YORK.GPJ LOG-WELL.GDT 9/8/15

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: CD3896E-01-09-15

Client: Samaritan Medical Center

Boring Location: See Boring Location Plan

Project: Subsurface Investigation

Parking Lot

Women's and Children's Addition

Watertown, New York

Start Date: 7/21/2015 Finish Date: 7/21/2015

Boring No.: B-7 Sheet 1 of 1

Groundwater Observations

Date	Time	Depth	Casing
7/21/2015	AM	7.0'	OUT

Coordinates

Latitude

Longitude

Sampler Hammer

Weight: 140 lbs.

Fall: 30 in.

Hammer Type: Automatic

Ground Elev.:

Boring Advance By:

3 1/4" Auger

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Recovery (Inches)
1	AUGER	1	0.0	2.0	SS	17 4 4 4	0.5	6" ASPHALT PAVEMENT	4
2		2	2.0	4.0	SS	3 3 4 4		Brown cmf SAND; and ASPHALT Fragments; trace SILT (moist, non-plastic) FILL	1
4		3	4.0	6.0	SS	3 4 7 4		Brown c-m+f SAND; little SILT; trace f GRAVEL (saturated, non-plastic) w = 25.3%	2
6		4	6.0	8.0	SS	3 2 3 3		Similar Soil (saturated, non-plastic)	6
8		5	8.0	10.0	SS	2 2 2 2	8.0	Brownish-Grey cmf SAND; and SILT; little mf GRAVEL (saturated, non-plastic)	8
10							10.0	Boring terminated at 10.0 feet.	

Notes:

1. Borehole backfilled with onsite soils and patched at the surface with asphalt cold patch.

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: Tyler Weston; Josh Miller

Inspector:

ATL-LOG1 CD3896 SAMARITAN MEDICAL CENTER - WATERTOWN, NEW YORK.GPJ LOG-WELL.GDT 9/8/15

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: CD3896E-01-09-15

Client: Samaritan Medical Center

Boring Location: See Boring Location Plan

Project: Subsurface Investigation

Parking Lot

Women's and Children's Addition

Watertown, New York

Start Date: 7/20/2015 Finish Date: 7/20/2015

Boring No.: B-8 Sheet 1 of 1

Groundwater Observations

Date	Time	Depth	Casing
7/20/2015	PM	6.0'	OUT

Coordinates

Latitude

Longitude

Sampler Hammer

Weight: 140 lbs.

Fall: 30 in.

Hammer Type: Automatic

Ground Elev.:

Boring Advance By:

3 1/4" Auger

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine, m - medium, c - coarse; and - 35-50%, some - 20-35%, little - 10-20%, trace - 0-10%)	Recovery (Inches)
1	AUGER	1	0.0	2.0	SS	28 7 7 9	0.5	6" ASPHALT PAVEMENT	14
2								Brown cmf SAND; and SILT; little f GRAVEL; trace CLAY (wet, very slightly plastic) FILL	
3		2	2.0	4.0	SS	9 7 7 6		Brown cmf+ SAND; some SILT; little mf- GRAVEL; trace CINDERS; trace DEBRIS (ceramic, glass) (saturated, non-plastic) FILL w = 19.8%	12
4									
5		3	4.0	6.0	SS	6 4 4 3		Brown cmf SAND; little SILT; little CINDERS; little DEBRIS (tar paper, glass, coal, ceramic) (saturated, non-plastic) FILL	6
6									
7		4	6.0	8.0	SS	1 1 1 2		Grey mf SAND; little SILT; trace CLAY (saturated, very slightly plastic) FILL	10
8									
9		5	8.0	10.0	SS	2 1 1 2		Black and Brown cmf SAND; some CINDERS; little DEBRIS (vitrified clay pipe, tar paper); trace ORGANIC MATERIAL	8
10							10.0	(wood fragments) (saturated, non-plastic) FILL	
11								Boring terminated at 10.0 feet.	
12								Notes:	
13								1. Borehole backfilled with onsite soils and patched at the surface with asphalt cold patch.	
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: Tyler Weston; Josh Miller

Inspector:

ATL-LOG1 CD3896 SAMARITAN MEDICAL CENTER - WATERTOWN, NEW YORK.GPJ LOG-WELL.GDT 9/8/15

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: CD3896E-01-09-15

Client: Samaritan Medical Center

Boring Location: See Boring Location Plan

Project: Subsurface Investigation

Parking Lot

Women's and Children's Addition

Watertown, New York

Start Date: 7/21/2015 Finish Date: 7/21/2015

Boring No.: B-9 Sheet 1 of 1

Groundwater Observations

Date	Time	Depth	Casing
7/21/2015	AM	DRY	OUT

Coordinates

Latitude

Longitude

Sampler Hammer

Weight: 140 lbs.

Fall: 30 in.

Hammer Type: Automatic

Ground Elev.:

Boring Advance By:

3 1/4" Auger

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine, m - medium, c - coarse; and - 35-50%, some - 20-35%, little - 10-20%, trace - 0-10%)	Recovery (inches)
1	AUGER	1	0.0	2.0	SS	21 8 4 4	0.5	6" CRUSHED STONE	10
2							2.0	Brown mf GRAVEL; some cmf SAND; some SILT (wet, non-plastic)	
2		2	2.0	4.0	SS	4 4 6 6		Mottled Orangish-Brown cmf SAND; and SILT; little CLAY (saturated, slightly plastic)	12
4		3	4.0	6.0	SS	6 7 8 6		Similar Soil (saturated, slightly plastic)	20
6		4	6.0	8.0	SS	7 7 7 7		Similar Soil (saturated, slightly plastic)	18
8		5	8.0	10.0	SS	6 6 7 6		Similar Soil (saturated, slightly plastic) COBBLE Fragments	10
10							10.0	Boring terminated at 10.0 feet.	

Notes:

1. Borehole backfilled with onsite soils.

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: Tyler Weston; Josh Miller

Inspector:

ATL-LOG1 CD3896 SAMARITAN MEDICAL CENTER - WATERTOWN, NEW YORK.GPJ LOG-WELL.GDT 9/8/15

APPENDIX D

LABORATORY TEST RESULTS

ATLANTIC TESTING LABORATORIES

WBE certified company

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOILS

ASTM D 2216

PROJECT INFORMATION

Client: Samaritan Medical Center
Project: Womens and Childrens Addition, Watertown, NY

ATL Report No.: CD3896SL-01-08-15
Report Date: August 27, 2015
Date Received: August 24, 2015

TEST DATA

Boring No.	Sample No.	Depth (ft)	Moisture Content (%)
B-1	S-2	2.0 - 4.0	6.9
	S-3 [1]	4.0 - 6.0	4.7
	S-4	6.0 - 8.0	4.9
B-2	S-2	2.0 - 4.0	12.1
	S-3 [1]	4.0 - 6.0	5.7
	S-4	6.0 - 8.0	6.0
	S-5	8.0 -10.0	5.1
B-3	S-2	2.0 - 4.0	11.7
	S-3 [1]	4.0 - 6.0	19.8
	S-4	6.0 - 8.0	20.9
	S-5 [1]	8.0 -10.0	7.8
	S-6 [1]	10.0 - 12.0	4.8
B-4	S-2	2.0 - 4.0	9.5
B-7	S-3 [1]	4.0 - 6.0	25.3
B-8	S-2 [1]	2.0 - 4.0	19.8
B-10	S-2	2.0 - 4.0	27.6

REMARKS

1. Sample mass was less than the minimum mass outlined in the referenced test method.

Reviewed By: Judy Cimei

Date: 8/27/15

ATLANTIC TESTING LABORATORIES

WBE certified company

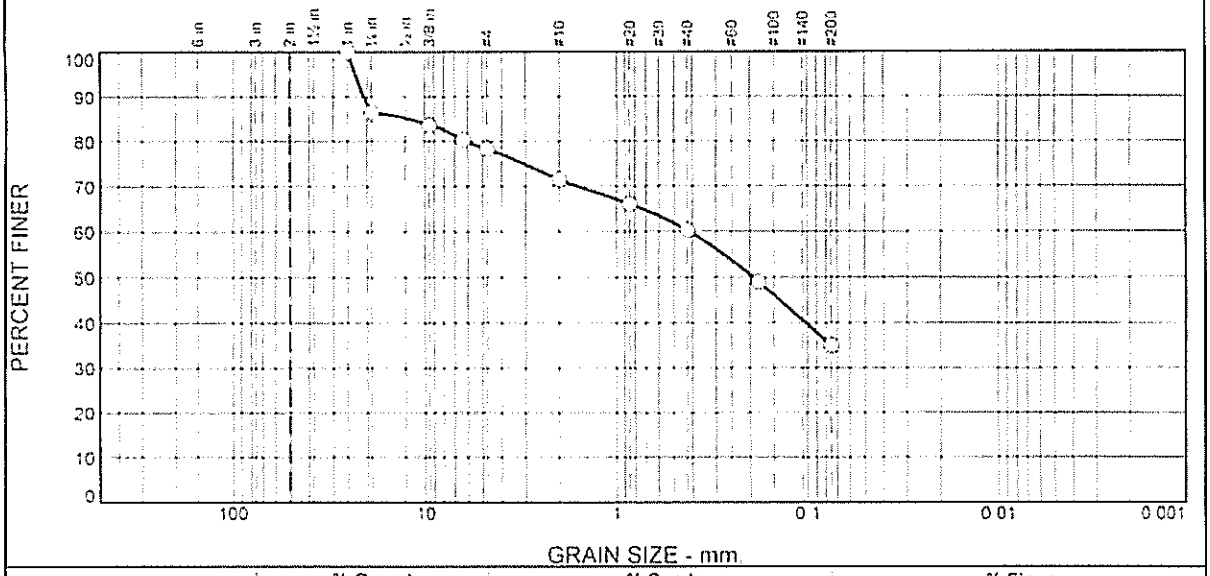
Particle Size Distribution Report

Project: Womens and Childrens Addition, Watertown, NY **Report No.:** CD3896SL-01-08-15

Client: Samaritan Medical Center **Date:** 8/27/15

Sample No: B-1;S-3 **Source of Sample:** Boring Samples

Location: In-situ **Elev./Depth:**



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	14	8	6	12	25	35	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1"	100		
3/4"	86		
3/8"	84		
1/4"	80		
#4	78		
#10	72		
#20	66		
#40	60		
#80	49		
#200	35		

* (no specification provided)

Soil Description

Brown c-mf- SAND; some SILT; some mf GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 12.1556 D_{60}= 0.4151 D_{50}= 0.1932

D_{30}= D_{15}= D_{10}=

C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Moisture Content = 4.7%

Figure

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by: Judy Daniel Date: 8/27/15

ATLANTIC TESTING LABORATORIES

WBE certified company

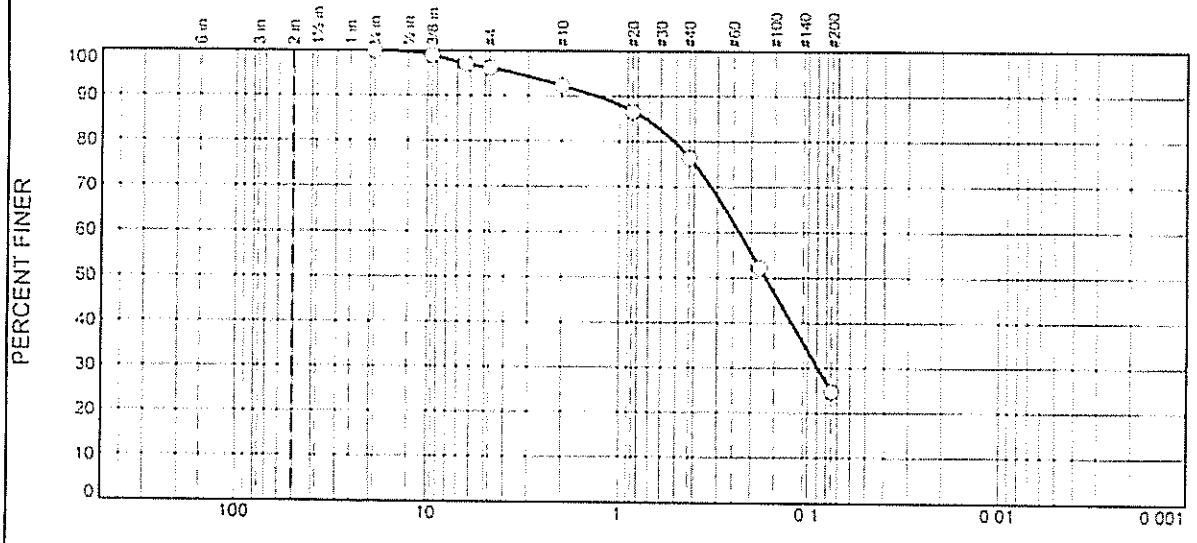
Particle Size Distribution Report

Project: Womens and Childrens Addition, Watertown, NY **Report No.:** CD3896SL-02-08-15

Client: Samaritan Medical Center **Date:** 8/27/15

Sample No: B-3:S-3 **Source of Sample:** Boring Samples

Location: In-situ **Elev./Depth:** 4.0 - 6.0'



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	4	16	51	25	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
3/4"	100		
3/8"	99		
#4	97		
#10	96		
#20	92		
#40	87		
#80	76		
#200	52		
	25		

* (no specification provided)

Soil Description

Brown c-mf- SAND; some SILT; trace f GRAVEL.

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 0.7298 D_{60}= 0.2313 D_{50}= 0.1680

D_{30}= 0.0890 D_{15}= D_{10}=

C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Moisture Content = 19.8%

Figure

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by: Judy Cones Date: 8/27/15

ATLANTIC TESTING LABORATORIES

WBE certified company

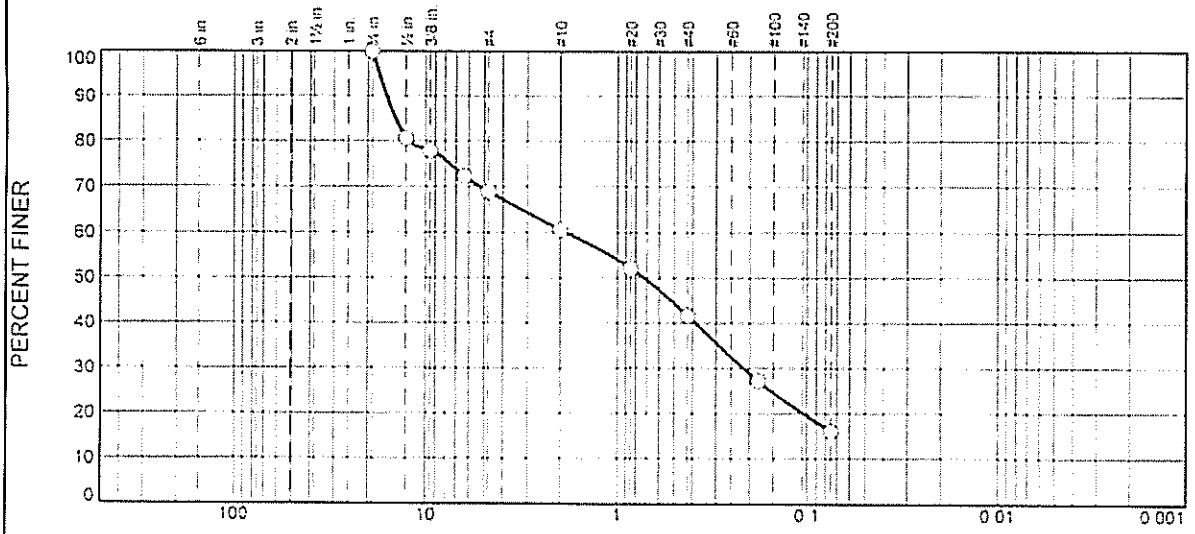
Particle Size Distribution Report

Project: Womens and Childrens Addition, Watertown, NY **Report No.:** CD3896SL-03-08-15

Client: Samaritan Medical Center **Date:** 8/27/15

Sample No: B-4;S-2 **Source of Sample:** Boring Samples

Location: In-situ **Elev./Depth:** 2.0 - 4.0'



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	31	8	19	26	16	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
3/4"	100		
1/2"	81		
3/8"	78		
1/4"	72		
#4	69		
#10	61		
#20	52		
#40	42		
#80	27		
#200	16		

* (no specification provided)

Soil Description

Brown c-mf SAND; some mf GRAVEL; little SILT

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 14.4473 D_{60}= 1.8717 D_{50}= 0.7239

D_{30}= 0.2155 D_{15}= D_{10}=

C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Moisture Content = 9.5%

Figure

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by: Judy Crites Date: 8/27/15

ATLANTIC TESTING LABORATORIES

WBE certified company

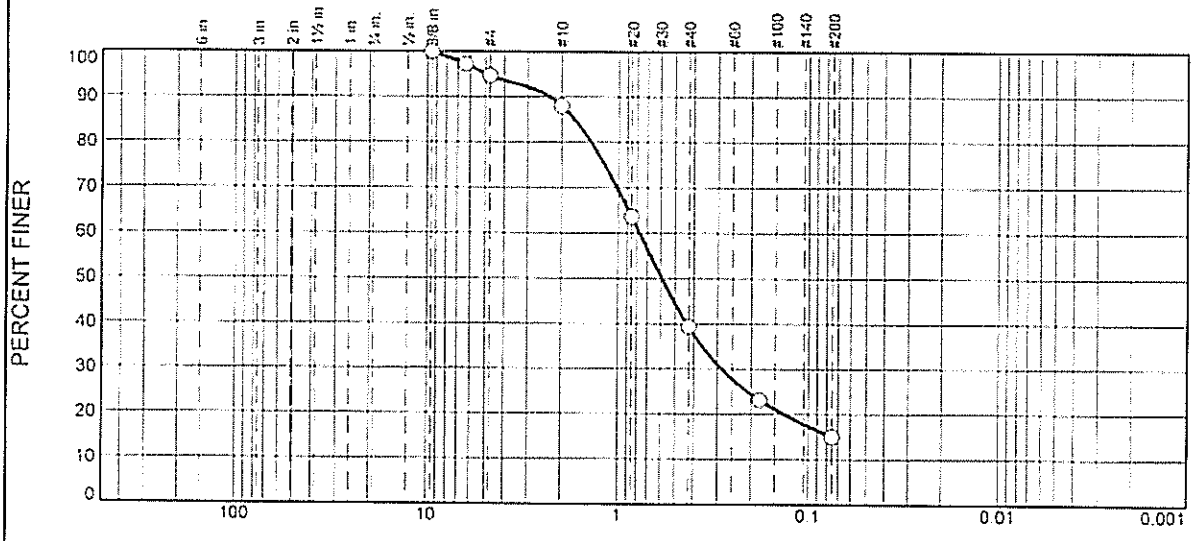
Particle Size Distribution Report

Project: Womens and Childrens Addition, Watertown, NY **Report No.:** CD3896SL-04-08-15

Client: Samaritan Medical Center **Date:** 8/27/15

Sample No: B-7:S-3 **Source of Sample:** Boring Samples

Location: In-situ **Elev./Depth:** 4.0 - 6.0'



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	5	7	49	24	15	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
3/8"	100		
1/4"	97		
#4	95		
#10	88		
#20	64		
#40	39		
#80	23		
#200	15		

* (no specification provided)

Soil Description

Brown c-m-f SAND; little SILT; trace f GRAVEL.

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 1.7054 D_{60}= 0.7694 D_{50}= 0.5864

D_{30}= 0.2849 D_{15}= 0.0752 D_{10}=

C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Moisture Content - 25.3%

Figure

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by: Judy Amos Date: 8/27/15

ATLANTIC TESTING LABORATORIES

WBE certified company

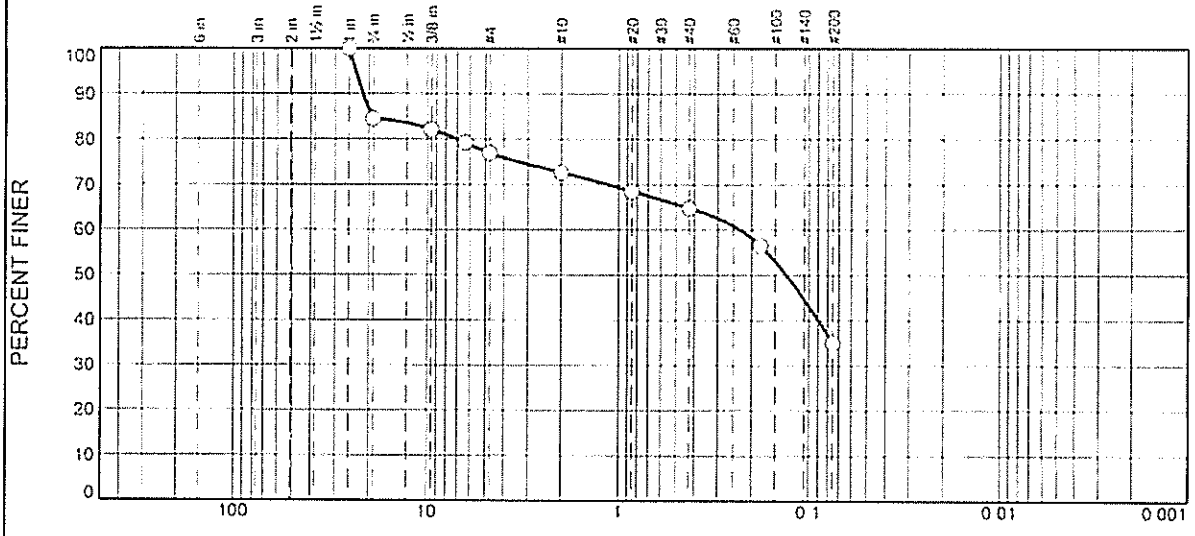
Particle Size Distribution Report

Project: Womens and Childrens Addition, Watertown, NY **Report No.:** CD3896SL-05-08-15

Client: Samaritan Medical Center **Date:** 8/27/15

Sample No: B-8:S-2 **Source of Sample:** Boring Samples

Location: In-situ **Elev./Depth:** 2.0 - 4.0'



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	15	8	4	8	30	35	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1"	100		
3/4"	85		
3/8"	82		
1/4"	79		
#4	77		
#10	73		
#20	69		
#40	65		
#80	57		
#200	35		

* (no specification provided)

Soil Description

Brown cmf- SAND; some SILT; little mf- GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 19.2948 D_{60}= 0.2298 D_{50}= 0.1313

D_{30}= D_{15}= D_{10}=

C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Moisture Content 19.8%

Figure

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by: Judy Ames Date: 8/27/15

ATLANTIC TESTING LABORATORIES

WBE certified company

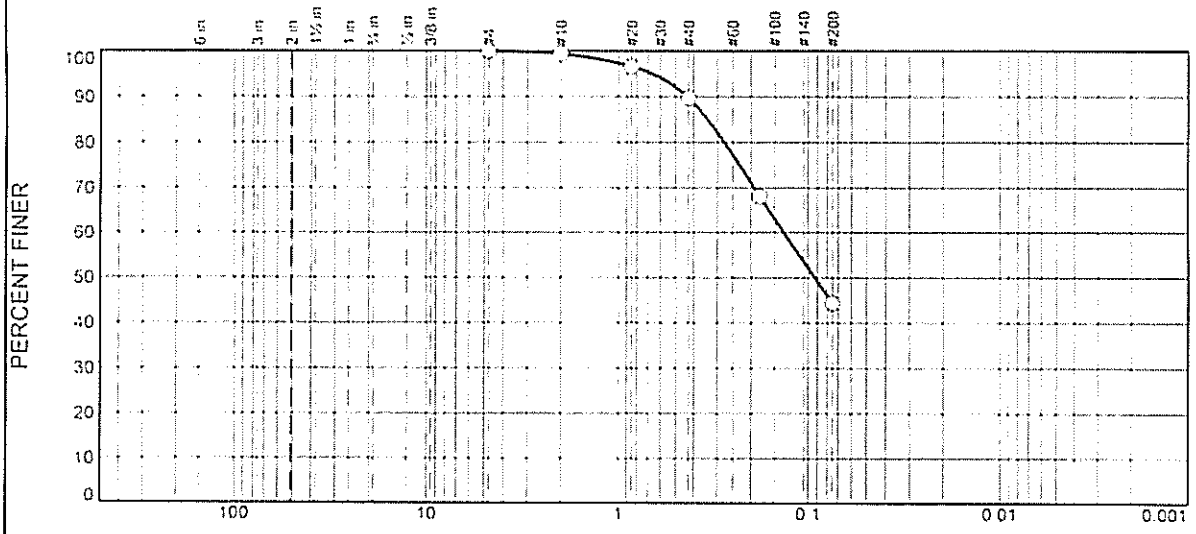
Particle Size Distribution Report

Project: Womens and Childrens Addition, Watertown, NY **Report No.:** CD3896SL-06-08-15

Client: Samaritan Medical Center **Date:** 8/27/15

Sample No: B-10:S-2 **Source of Sample:** Boring Samples

Location: In-situ **Elev./Depth:** 2.0 - 4.0'



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	9	46	44	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
#4	100		
#10	99		
#20	97		
#40	90		
#80	68		
#200	44		

* (no specification provided)

Soil Description

Brown c-mf- SAND; and SILT

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 0.3374 D_{60}= 0.1344 D_{50}= 0.0928

D_{30}= D_{15}= D_{10}=

C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Moisture Content = 27.6%

Figure

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by: Judy Cairns Date: 8/27/15

APPENDIX C
HYDROLOGIC AND HYDRAULIC CALCULATIONS

Samaritan Medical Center
Women's and Children's Addition
2014-150
Water Quality and Runoff Reduction Calculations

Addition Site

Total Area:	0.90 AC
Existing Disturbed Impervious Area:	0.85 AC

Water Quality/Runoff Reduction Practices:

BIORETENTION:

Bioretention Area No. 1

Bioretention Area No. 1 Area:	187 SF
WQv provided (6" Ponding/Stone Storage):	112.2 CF

Bioretention Area No. 2

Bioretention Area No. 2 Area:	305 SF
WQv provided (6" Ponding/Stone Storage):	183 CF

RAIN GARDEN:

Rain Garden

Rain Garden Areas:	150 SF
WQv provided (3" Ponding/Stone Storage):	52.5 CF
Total Water Quality Volume Provided:	**348 CF**

Predevelopment Site Map

Autodesk® Storm and Sanitary Analysis 2015 - Version 9.1.140 (Build 1)

****
Project Description
****
File Name ..... Predevelopment.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. SCS TR-20
Time of Concentration..... SCS TR-55
Link Routing Method ..... Hydrodynamic
Storage Node Exfiltration.. Constant rate, wetted area
Starting Date NOV-01-2015 00:00:00
Ending Date NOV-02-2015 00:00:00
Report Time Step 00:05:00

****
Element Count
****
Number of rain gages 1
Number of subbasins 4
Number of nodes 8
Number of links 7

****
Subbasin Summary
****

Subbasin ID	Total Area acres
Addition Site 1	0.60
Addition Site 2	0.22
SMC Adj. Former Pratt	2.23
SMC Northeast Campus Corner	4.03

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
Jun-02	JUNCTION	477.75	482.25	0.00	
Jun-03	JUNCTION	479.14	485.04	0.00	
Jun-05	JUNCTION	480.58	484.73	0.00	
Jun-06	JUNCTION	480.66	484.91	0.00	
Jun-07	JUNCTION	478.45	482.50	0.00	
Jun-08	JUNCTION	480.15	483.20	0.00	
Jun-09	JUNCTION	480.77	483.37	0.00	
Jun-01	OUTFALL	474.18	475.06	0.00	

****
Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness

Link-01	Jun-02	Jun-01	CONDUIT	398.6	0.8830	0.0130
Link-05	Jun-06	Jun-05	CONDUIT	18.2	0.1649	0.0130
Link-06	Jun-07	Jun-02	CONDUIT	43.2	1.6219	0.0130
Link-07	Jun-03	Jun-07	CONDUIT	42.1	1.6390	0.0130
Link-08	Jun-08	Jun-03	CONDUIT	174.3	0.3501	0.0130
Link-09	Jun-09	Jun-08	CONDUIT	39.9	1.4271	0.0130
Link-10	Jun-05	Jun-03	CONDUIT	278.4	0.4454	0.0130

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter ft	Width ft	No. of Barrels	Cross Sectional Area ft²	Full Flow Hydraulic Radius ft	Design Flow Capacity cfs
Link-01	CIRCULAR	0.83	0.83	1	0.55	0.21	2.06
Link-05	CIRCULAR	1.00	1.00	1	0.79	0.25	1.45
Link-06	CIRCULAR	0.83	0.83	1	0.55	0.21	2.79
Link-07	CIRCULAR	1.25	1.25	1	1.23	0.31	8.27
Link-08	CIRCULAR	0.67	0.67	1	0.35	0.17	0.71
Link-09	CIRCULAR	0.33	0.33	1	0.09	0.08	0.23
Link-10	CIRCULAR	1.25	1.25	1	1.23	0.31	4.31

********** Runoff Quantity Continuity **********	Volume acre-ft	Depth inches
Total Precipitation	1.194	2.025
Surface Runoff	0.089	0.150
Continuity Error (%)	-0.002	

********** Flow Routing Continuity **********	Volume acre-ft	Volume Mgallons
External Inflow	0.000	0.000
External Outflow	0.642	0.209
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.001	0.000
Continuity Error (%)	-0.002	

****
Composite Curve Number Computations Report
****

Subbasin Addition Site 1

Soil/Surface Description	Area (acres)	Soil Group	CN

Paved parking & roofs	0.58	C	98.00
> 75% grass cover, Good	0.02	C	74.00
Composite Area & Weighted CN	0.60		97.13

Subbasin Addition Site 2

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking & roofs	0.19	C	98.00
> 75% grass cover, Good	0.03	C	74.00
Composite Area & Weighted CN	0.22		94.76

Subbasin SMC Adj. Former Pratt

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	0.46	C	98.00
SMC	1.22	C	98.00
Grass Areas	0.55	C	74.00
Composite Area & Weighted CN	2.23		92.08

Subbasin SMC Northeast Campus Corner

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	2.48	C	98.00
Parking Garage	0.97	C	98.00
MOB	0.34	C	98.00
Grass Areas	0.23	C	74.00
Composite Area & Weighted CN	4.03		96.63

****
SCS TR-55 Time of Concentration Computations Report
****

Sheet Flow Equation

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where:

Tc = Time of Concentration (hrs)
n = Manning's Roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)

Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hrs)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hrs)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's Roughness

Subbasin Addition Site 1

User-Defined TOC override (minutes): 2.06

Subbasin Addition Site 2

User-Defined TOC override (minutes): 1.70

Subbasin SMC Adj. Former Pratt

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	140.00	0.00	0.00
Slope (%):	0.50	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.50	0.00	0.00
Velocity (ft/sec):	0.81	0.00	0.00
Computed Flow Time (minutes):	2.89	0.00	0.00

Channel Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	460.00	0.00	

0.00				
	Channel Slope (%):	1.00	0.00	
0.00				
	Cross Section Area (ft²):	0.27	0.00	
0.00				
	Wetted Perimeter (ft):	1.30	0.00	
0.00				
	Velocity (ft/sec):	4.02	0.00	
0.00				
	Computed Flow Time (minutes):	1.91	0.00	
0.00				

	Total TOC (minutes):	4.80

Subbasin SMC Northeast Campus Corner

Sheet Flow Computations

		Subarea A	Subarea B	Subarea
C				
	Manning's Roughness:	0.01	0.00	
0.00				
	Flow Length (ft):	145.00	0.00	
0.00				
	Slope (%):	1.50	0.00	
0.00				
	2 yr, 24 hr Rainfall (in):	2.50	0.00	
0.00				
	Velocity (ft/sec):	1.26	0.00	
0.00				
	Computed Flow Time (minutes):	1.92	0.00	
0.00				

Channel Flow Computations

		Subarea A	Subarea B	Subarea
C				
	Manning's Roughness:	0.01	0.00	
0.00				
	Flow Length (ft):	715.00	0.00	
0.00				
	Channel Slope (%):	0.50	0.00	
0.00				
	Cross Section Area (ft²):	0.39	0.00	
0.00				
	Wetted Perimeter (ft):	1.57	0.00	
0.00				
	Velocity (ft/sec):	3.20	0.00	
0.00				
	Computed Flow Time (minutes):	3.72	0.00	
0.00				

	Total TOC (minutes):	5.64

****
Subbasin Runoff Summary
****

Subbasin ID	Total Precip in	Total Runoff in	Peak Runoff cfs	Weighted Curve Number	Time of Concentration days	hh:mm:ss
Addition Site 1	2.00	1.68	1.31	97.130	0	00:10:00
Addition Site 2	2.00	1.46	0.43	94.760	0	00:10:00
SMC Adj. Former Pratt	2.00	1.24	3.81	92.080	0	00:10:00
SMC Northeast Campus Corner	2.00	1.64	8.60	96.630	0	00:10:00

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	Time of Max Occurrence hh:mm	Total Flooded Volume acre-in	Total Time Flooded minutes	Retention Time hh:mm:ss
Jun-02	0.28	3.97	481.72	0	11:49	0	0	0:00:00
Jun-03	0.22	4.32	483.46	0	12:04	0	0	0:00:00
Jun-05	0.21	3.84	484.42	0	12:05	0	0	0:00:00
Jun-06	0.28	4.25	484.91	0	11:53	0.95	20	0:00:00
Jun-07	0.26	4.05	482.50	0	11:49	1.45	31	0:00:00
Jun-08	0.14	3.05	483.20	0	11:49	0.48	26	0:00:00
Jun-09	0.06	2.60	483.37	0	11:49	0.08	26	0:00:00
Jun-01	0.00	0.00	474.18	0	00:00	0	0	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	Time of Peak Inflow Occurrence hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	Time of Peak Flooding Occurrence hh:mm
Jun-02	JUNCTION	0.00	2.78	0	11:50	0.00		
Jun-03	JUNCTION	3.77	7.31	0	12:04	0.00		
Jun-05	JUNCTION	0.00	3.88	0	11:53	0.00		
Jun-06	JUNCTION	8.42	8.42	0	12:04	4.84	0	12:04
Jun-07	JUNCTION	0.00	6.84	0	12:05	4.08	0	12:05
Jun-08	JUNCTION	1.28	1.83	0	12:04	1.82	0	12:05
Jun-09	JUNCTION	0.42	0.45	0	11:49	0.37	0	11:49
Jun-01	OUTFALL	0.00	2.76	0	11:53	0.00		

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
Jun-01	97.43	0.43	2.76
System	97.43	0.43	2.76

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow	Total Time minutes	Reported Condition	Surcharged Depth
Link-01	CONDUIT	0 11:53	5.19	1.00	2.76	2.06	1.34	0.94	0	> CAPACITY	
Link-05	CONDUIT	0 11:53	4.94	1.00	3.88	1.45	2.68	1.00	40	SURCHARGED	
Link-06	CONDUIT	0 11:50	5.10	1.00	2.78	2.79	1.00	1.00	52	SURCHARGED	
Link-07	CONDUIT	0 12:05	5.57	1.00	6.84	8.27	0.83	1.00	46	SURCHARGED	
Link-08	CONDUIT	0 11:49	2.15	1.00	0.57	0.71	0.79	1.00	43	SURCHARGED	
Link-09	CONDUIT	0 11:49	3.96	1.00	0.32	0.23	1.41	1.00	42	SURCHARGED	
Link-10	CONDUIT	0 12:13	3.33	1.00	3.87	4.31	0.90	1.00	39	SURCHARGED	

****
Highest Flow Instability Indexes
****
All links are stable.

WARNING 107 : Initial water surface elevation defined for Junction Jun-02 is below junction invert elevation.
Assumed initial water surface elevation equal to invert elevation.
WARNING 108 : Surcharge elevation defined for Junction Jun-02 is below junction maximum elevation. Assumed surcharge elevation equal to maximum elevation.
WARNING 116 : Conduit inlet invert elevation defined for Conduit Link-01 is below upstream node invert elevation.
Assumed conduit inlet invert elevation equal to upstream node invert elevation.

Analysis began on: Mon Dec 21 13:46:23 2015
Analysis ended on: Mon Dec 21 13:46:25 2015
Total elapsed time: 00:00:02

Autodesk® Storm and Sanitary Analysis 2015 - Version 9.1.140 (Build 1)

****
Project Description
****
File Name ..... Predevelopment.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. SCS TR-20
Time of Concentration..... SCS TR-55
Link Routing Method ..... Hydrodynamic
Storage Node Exfiltration.. Constant rate, wetted area
Starting Date NOV-01-2015 00:00:00
Ending Date NOV-02-2015 00:00:00
Report Time Step 00:05:00

****
Element Count
****
Number of rain gages 1
Number of subbasins 4
Number of nodes 8
Number of links 7

****
Subbasin Summary
****

Subbasin ID	Total Area acres
Addition Site 1	0.60
Addition Site 2	0.22
SMC Adj. Former Pratt	2.23
SMC Northeast Campus Corner	4.03

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
Jun-02	JUNCTION	477.75	482.25	0.00	
Jun-03	JUNCTION	479.14	485.04	0.00	
Jun-05	JUNCTION	480.58	484.73	0.00	
Jun-06	JUNCTION	480.66	484.91	0.00	
Jun-07	JUNCTION	478.45	482.50	0.00	
Jun-08	JUNCTION	480.15	483.20	0.00	
Jun-09	JUNCTION	480.77	483.37	0.00	
Jun-01	OUTFALL	474.18	475.06	0.00	

****
Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness

Link-01	Jun-02	Jun-01	CONDUIT	398.6	0.8830	0.0130
Link-05	Jun-06	Jun-05	CONDUIT	18.2	0.1649	0.0130
Link-06	Jun-07	Jun-02	CONDUIT	43.2	1.6219	0.0130
Link-07	Jun-03	Jun-07	CONDUIT	42.1	1.6390	0.0130
Link-08	Jun-08	Jun-03	CONDUIT	174.3	0.3501	0.0130
Link-09	Jun-09	Jun-08	CONDUIT	39.9	1.4271	0.0130
Link-10	Jun-05	Jun-03	CONDUIT	278.4	0.4454	0.0130

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter ft	Width ft	No. of Barrels	Cross Sectional Area ft²	Full Flow Hydraulic Radius ft	Design Flow Capacity cfs
Link-01	CIRCULAR	0.83	0.83	1	0.55	0.21	2.06
Link-05	CIRCULAR	1.00	1.00	1	0.79	0.25	1.45
Link-06	CIRCULAR	0.83	0.83	1	0.55	0.21	2.79
Link-07	CIRCULAR	1.25	1.25	1	1.23	0.31	8.27
Link-08	CIRCULAR	0.67	0.67	1	0.35	0.17	0.71
Link-09	CIRCULAR	0.33	0.33	1	0.09	0.08	0.23
Link-10	CIRCULAR	1.25	1.25	1	1.23	0.31	4.31

********** Runoff Quantity Continuity **********	Volume acre-ft	Depth inches
Total Precipitation	2.030	3.442
Surface Runoff	0.169	0.286
Continuity Error (%)	-0.003	

********** Flow Routing Continuity **********	Volume acre-ft	Volume Mgallons
External Inflow	0.000	0.000
External Outflow	1.078	0.351
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.002	0.001
Continuity Error (%)	-0.002	

****
Composite Curve Number Computations Report
****

Subbasin Addition Site 1

Soil/Surface Description	Area (acres)	Soil Group	CN

Paved parking & roofs	0.58	C	98.00
> 75% grass cover, Good	0.02	C	74.00
Composite Area & Weighted CN	0.60		97.13

Subbasin Addition Site 2

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking & roofs	0.19	C	98.00
> 75% grass cover, Good	0.03	C	74.00
Composite Area & Weighted CN	0.22		94.76

Subbasin SMC Adj. Former Pratt

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	0.46	C	98.00
SMC	1.22	C	98.00
Grass Areas	0.55	C	74.00
Composite Area & Weighted CN	2.23		92.08

Subbasin SMC Northeast Campus Corner

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	2.48	C	98.00
Parking Garage	0.97	C	98.00
MOB	0.34	C	98.00
Grass Areas	0.23	C	74.00
Composite Area & Weighted CN	4.03		96.63

****
SCS TR-55 Time of Concentration Computations Report
****

Sheet Flow Equation

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where:

Tc = Time of Concentration (hrs)
n = Manning's Roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)

Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hrs)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hrs)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's Roughness

Subbasin Addition Site 1

User-Defined TOC override (minutes): 2.06

Subbasin Addition Site 2

User-Defined TOC override (minutes): 1.70

Subbasin SMC Adj. Former Pratt

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	140.00	0.00	0.00
Slope (%):	0.50	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.50	0.00	0.00
Velocity (ft/sec):	0.81	0.00	0.00
Computed Flow Time (minutes):	2.89	0.00	0.00

Channel Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	460.00	0.00	

0.00				
	Channel Slope (%):	1.00	0.00	
0.00				
	Cross Section Area (ft²):	0.27	0.00	
0.00				
	Wetted Perimeter (ft):	1.30	0.00	
0.00				
	Velocity (ft/sec):	4.02	0.00	
0.00				
	Computed Flow Time (minutes):	1.91	0.00	
0.00				

Total TOC (minutes):	4.80	

Subbasin SMC Northeast Campus Corner

Sheet Flow Computations

		Subarea A	Subarea B	Subarea
C				
	Manning's Roughness:	0.01	0.00	
0.00				
	Flow Length (ft):	145.00	0.00	
0.00				
	Slope (%):	1.50	0.00	
0.00				
	2 yr, 24 hr Rainfall (in):	2.50	0.00	
0.00				
	Velocity (ft/sec):	1.26	0.00	
0.00				
	Computed Flow Time (minutes):	1.92	0.00	
0.00				

Channel Flow Computations

		Subarea A	Subarea B	Subarea
C				
	Manning's Roughness:	0.01	0.00	
0.00				
	Flow Length (ft):	715.00	0.00	
0.00				
	Channel Slope (%):	0.50	0.00	
0.00				
	Cross Section Area (ft²):	0.39	0.00	
0.00				
	Wetted Perimeter (ft):	1.57	0.00	
0.00				
	Velocity (ft/sec):	3.20	0.00	
0.00				
	Computed Flow Time (minutes):	3.72	0.00	
0.00				

Total TOC (minutes):	5.64	

****
Subbasin Runoff Summary
****

Subbasin ID	Total Precip in	Total Runoff in	Peak Runoff cfs	Weighted Curve Number	Time of Concentration days	hh:mm:ss
Addition Site 1	3.40	3.07	2.31	97.130	0	00:10:00
Addition Site 2	3.40	2.81	0.80	94.760	0	00:10:00
SMC Adj. Former Pratt	3.40	2.55	7.61	92.080	0	00:10:00
SMC Northeast Campus Corner	3.40	3.02	15.33	96.630	0	00:10:00

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	Time of Max Occurrence hh:mm	Total Flooded Volume acre-in	Total Time Flooded minutes	Retention Time hh:mm:ss
Jun-02	0.35	3.94	481.69	0	11:42	0	0	0:00:00
Jun-03	0.28	5.05	484.19	0	12:04	0	0	0:00:00
Jun-05	0.26	4.08	484.66	0	12:04	0	0	0:00:00
Jun-06	0.34	4.25	484.91	0	11:47	3.18	31	0:00:00
Jun-07	0.33	4.05	482.50	0	11:42	2.83	53	0:00:00
Jun-08	0.17	3.05	483.20	0	11:42	1.08	39	0:00:00
Jun-09	0.08	2.60	483.37	0	11:42	0.20	40	0:00:00
Jun-01	0.00	0.00	474.18	0	00:00	0	0	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	Time of Peak Inflow Occurrence hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	Time of Peak Flooding Occurrence hh:mm
Jun-02	JUNCTION	0.00	2.78	0	11:44	0.00		
Jun-03	JUNCTION	7.48	9.97	0	12:04	0.00		
Jun-05	JUNCTION	0.00	3.83	0	12:17	0.00		
Jun-06	JUNCTION	14.98	14.98	0	12:04	12.37	0	12:04
Jun-07	JUNCTION	0.00	9.09	0	12:04	6.31	0	12:04
Jun-08	JUNCTION	2.25	3.23	0	12:04	3.22	0	12:04
Jun-09	JUNCTION	0.78	0.78	0	12:04	0.66	0	12:04
Jun-01	OUTFALL	0.00	2.76	0	11:45	0.00		

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
Jun-01	98.68	0.63	2.76
System	98.68	0.63	2.76

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days	hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow	Total Time Surcharged minutes	Reported Condition
Link-01	CONDUIT	0	11:45	5.19	1.00	2.76	2.06	1.34	0.94	0	> CAPACITY
Link-05	CONDUIT	0	12:17	4.88	1.00	3.83	1.45	2.65	1.00	64	SURCHARGED
Link-06	CONDUIT	0	11:44	5.11	1.00	2.78	2.79	1.00	1.00	83	SURCHARGED
Link-07	CONDUIT	0	12:04	7.41	1.00	9.09	8.27	1.10	1.00	72	SURCHARGED
Link-08	CONDUIT	0	12:04	2.47	1.00	0.86	0.71	1.21	1.00	69	SURCHARGED
Link-09	CONDUIT	0	11:42	3.53	1.00	0.29	0.23	1.25	1.00	68	SURCHARGED
Link-10	CONDUIT	0	12:18	3.20	1.00	3.85	4.31	0.89	1.00	63	SURCHARGED

****
Highest Flow Instability Indexes
****
All links are stable.

WARNING 107 : Initial water surface elevation defined for Junction Jun-02 is below junction invert elevation.
Assumed initial water surface elevation equal to invert elevation.
WARNING 108 : Surcharge elevation defined for Junction Jun-02 is below junction maximum elevation. Assumed surcharge elevation equal to maximum elevation.
WARNING 116 : Conduit inlet invert elevation defined for Conduit Link-01 is below upstream node invert elevation.
Assumed conduit inlet invert elevation equal to upstream node invert elevation.

Analysis began on: Mon Dec 21 13:48:00 2015
Analysis ended on: Mon Dec 21 13:48:01 2015
Total elapsed time: 00:00:01

Autodesk® Storm and Sanitary Analysis 2015 - Version 9.1.140 (Build 1)

****
Project Description
****
File Name ..... Predevelopment.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. SCS TR-20
Time of Concentration..... SCS TR-55
Link Routing Method ..... Hydrodynamic
Storage Node Exfiltration.. Constant rate, wetted area
Starting Date NOV-01-2015 00:00:00
Ending Date NOV-02-2015 00:00:00
Report Time Step 00:05:00

****
Element Count
****
Number of rain gages 1
Number of subbasins 4
Number of nodes 8
Number of links 7

****
Subbasin Summary
****

Subbasin ID	Total Area acres
Addition Site 1	0.60
Addition Site 2	0.22
SMC Adj. Former Pratt	2.23
SMC Northeast Campus Corner	4.03

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
Jun-02	JUNCTION	477.75	482.25	0.00	
Jun-03	JUNCTION	479.14	485.04	0.00	
Jun-05	JUNCTION	480.58	484.73	0.00	
Jun-06	JUNCTION	480.66	484.91	0.00	
Jun-07	JUNCTION	478.45	482.50	0.00	
Jun-08	JUNCTION	480.15	483.20	0.00	
Jun-09	JUNCTION	480.77	483.37	0.00	
Jun-01	OUTFALL	474.18	475.06	0.00	

****
Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness

Link-01	Jun-02	Jun-01	CONDUIT	398.6	0.8830	0.0130
Link-05	Jun-06	Jun-05	CONDUIT	18.2	0.1649	0.0130
Link-06	Jun-07	Jun-02	CONDUIT	43.2	1.6219	0.0130
Link-07	Jun-03	Jun-07	CONDUIT	42.1	1.6390	0.0130
Link-08	Jun-08	Jun-03	CONDUIT	174.3	0.3501	0.0130
Link-09	Jun-09	Jun-08	CONDUIT	39.9	1.4271	0.0130
Link-10	Jun-05	Jun-03	CONDUIT	278.4	0.4454	0.0130

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter ft	Width ft	No. of Barrels	Cross Sectional Area ft²	Full Flow Hydraulic Radius ft	Design Flow Capacity cfs
Link-01	CIRCULAR	0.83	0.83	1	0.55	0.21	2.06
Link-05	CIRCULAR	1.00	1.00	1	0.79	0.25	1.45
Link-06	CIRCULAR	0.83	0.83	1	0.55	0.21	2.79
Link-07	CIRCULAR	1.25	1.25	1	1.23	0.31	8.27
Link-08	CIRCULAR	0.67	0.67	1	0.35	0.17	0.71
Link-09	CIRCULAR	0.33	0.33	1	0.09	0.08	0.23
Link-10	CIRCULAR	1.25	1.25	1	1.23	0.31	4.31

********** Runoff Quantity Continuity **********	Volume acre-ft	Depth inches
Total Precipitation	3.433	5.821
Surface Runoff	0.304	0.516
Continuity Error (%)	-0.003	

********** Flow Routing Continuity **********	Volume acre-ft	Volume Mgallons
External Inflow	0.000	0.000
External Outflow	1.749	0.570
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.003	0.001
Continuity Error (%)	-0.002	

****
Composite Curve Number Computations Report
****

Subbasin Addition Site 1

Soil/Surface Description	Area (acres)	Soil Group	CN

Paved parking & roofs	0.58	C	98.00
> 75% grass cover, Good	0.02	C	74.00
Composite Area & Weighted CN	0.60		97.13

Subbasin Addition Site 2

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking & roofs	0.19	C	98.00
> 75% grass cover, Good	0.03	C	74.00
Composite Area & Weighted CN	0.22		94.76

Subbasin SMC Adj. Former Pratt

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	0.46	C	98.00
SMC	1.22	C	98.00
Grass Areas	0.55	C	74.00
Composite Area & Weighted CN	2.23		92.08

Subbasin SMC Northeast Campus Corner

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	2.48	C	98.00
Parking Garage	0.97	C	98.00
MOB	0.34	C	98.00
Grass Areas	0.23	C	74.00
Composite Area & Weighted CN	4.03		96.63

****
SCS TR-55 Time of Concentration Computations Report
****

Sheet Flow Equation

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where:

Tc = Time of Concentration (hrs)
n = Manning's Roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)

Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hrs)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hrs)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's Roughness

Subbasin Addition Site 1

User-Defined TOC override (minutes): 2.06

Subbasin Addition Site 2

User-Defined TOC override (minutes): 1.70

Subbasin SMC Adj. Former Pratt

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	140.00	0.00	0.00
Slope (%):	0.50	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.50	0.00	0.00
Velocity (ft/sec):	0.81	0.00	0.00
Computed Flow Time (minutes):	2.89	0.00	0.00

Channel Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	460.00	0.00	

0.00				
	Channel Slope (%):	1.00	0.00	
0.00				
	Cross Section Area (ft²):	0.27	0.00	
0.00				
	Wetted Perimeter (ft):	1.30	0.00	
0.00				
	Velocity (ft/sec):	4.02	0.00	
0.00				
	Computed Flow Time (minutes):	1.91	0.00	
0.00				

	Total TOC (minutes):	4.80

Subbasin SMC Northeast Campus Corner

Sheet Flow Computations

		Subarea A	Subarea B	Subarea
C				
	Manning's Roughness:	0.01	0.00	
0.00				
	Flow Length (ft):	145.00	0.00	
0.00				
	Slope (%):	1.50	0.00	
0.00				
	2 yr, 24 hr Rainfall (in):	2.50	0.00	
0.00				
	Velocity (ft/sec):	1.26	0.00	
0.00				
	Computed Flow Time (minutes):	1.92	0.00	
0.00				

Channel Flow Computations

		Subarea A	Subarea B	Subarea
C				
	Manning's Roughness:	0.01	0.00	
0.00				
	Flow Length (ft):	715.00	0.00	
0.00				
	Channel Slope (%):	0.50	0.00	
0.00				
	Cross Section Area (ft²):	0.39	0.00	
0.00				
	Wetted Perimeter (ft):	1.57	0.00	
0.00				
	Velocity (ft/sec):	3.20	0.00	
0.00				
	Computed Flow Time (minutes):	3.72	0.00	
0.00				

	Total TOC (minutes):	5.64

****

Subbasin Runoff Summary

****

Subbasin ID	Total Precip in	Total Runoff in	Peak Runoff cfs	Weighted Curve Number	Time of Concentration days	hh:mm:ss
Addition Site 1	5.75	5.41	3.96	97.130	0	00:10:00
Addition Site 2	5.75	5.13	1.41	94.760	0	00:10:00
SMC Adj. Former Pratt	5.75	4.83	13.93	92.080	0	00:10:00
SMC Northeast Campus Corner	5.75	5.35	26.44	96.630	0	00:10:00

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	hh:mm	Total Flooded Volume acre-in	Total Time Flooded minutes	Retention Time hh:mm:ss
Jun-02	0.47	3.67	481.42	0	11:24	0	0	0:00:00
Jun-03	0.37	5.80	484.94	0	12:04	0	0	0:00:00
Jun-05	0.32	4.15	484.73	0	11:56	0.55	16	0:00:00
Jun-06	0.42	4.25	484.91	0	11:41	7.32	44	0:00:00
Jun-07	0.45	4.05	482.50	0	11:24	5.20	103	0:00:00
Jun-08	0.22	3.05	483.20	0	11:36	2.06	62	0:00:00
Jun-09	0.11	2.60	483.37	0	11:35	0.43	64	0:00:00
Jun-01	0.00	0.00	474.18	0	00:00	0	0	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	hh:mm
Jun-02	JUNCTION	0.00	2.76	0	11:24	0.00		
Jun-03	JUNCTION	13.65	13.65	0	12:04	0.00		
Jun-05	JUNCTION	0.00	3.83	0	12:25	3.64	0	12:04
Jun-06	JUNCTION	25.90	25.90	0	12:04	23.65	0	12:04
Jun-07	JUNCTION	0.00	10.93	0	12:04	8.15	0	12:04
Jun-08	JUNCTION	3.87	5.13	0	12:04	5.11	0	12:04
Jun-09	JUNCTION	1.38	1.38	0	12:04	1.26	0	12:04
Jun-01	OUTFALL	0.00	2.76	0	11:24	0.00		

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
Jun-01	99.25	0.88	2.76
System	99.25	0.88	2.76

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days	hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow	Total Time minutes	Reported Condition
Link-01	CONDUIT	0	11:24	5.19	1.00	2.76	2.06	1.34	0.94	0	> CAPACITY
Link-05	CONDUIT	0	12:25	4.88	1.00	3.83	1.45	2.65	1.00	130	SURCHARGED
Link-06	CONDUIT	0	11:24	5.06	1.00	2.76	2.79	0.99	1.00	170	SURCHARGED
Link-07	CONDUIT	0	12:04	8.91	1.00	10.93	8.27	1.32	1.00	147	SURCHARGED
Link-08	CONDUIT	0	12:04	3.28	1.00	1.15	0.71	1.60	1.00	140	SURCHARGED
Link-09	CONDUIT	0	12:40	1.48	1.00	0.13	0.23	0.56	1.00	139	SURCHARGED
Link-10	CONDUIT	0	12:26	3.13	1.00	3.84	4.31	0.89	1.00	126	SURCHARGED

****
Highest Flow Instability Indexes
****
All links are stable.

WARNING 107 : Initial water surface elevation defined for Junction Jun-02 is below junction invert elevation.
Assumed initial water surface elevation equal to invert elevation.
WARNING 108 : Surcharge elevation defined for Junction Jun-02 is below junction maximum elevation. Assumed surcharge elevation equal to maximum elevation.
WARNING 116 : Conduit inlet invert elevation defined for Conduit Link-01 is below upstream node invert elevation.
Assumed conduit inlet invert elevation equal to upstream node invert elevation.

Analysis began on: Mon Dec 21 13:49:46 2015
Analysis ended on: Mon Dec 21 13:49:47 2015
Total elapsed time: 00:00:01

Post-Development Site Map

Autodesk® Storm and Sanitary Analysis 2015 - Version 9.1.140 (Build 1)

****
Project Description
****
File Name ..... Postdevelopment.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. SCS TR-20
Time of Concentration..... SCS TR-55
Link Routing Method ..... Hydrodynamic
Storage Node Exfiltration.. Constant rate, wetted area
Starting Date NOV-01-2015 00:00:00
Ending Date NOV-02-2015 00:00:00
Report Time Step 00:05:00

****
Element Count
****
Number of rain gages 1
Number of subbasins 6
Number of nodes 10
Number of links 9

****
Subbasin Summary
****

Subbasin ID	Total Area acres
Addition Site 1	0.07
Addition Site 2	0.39
Addition Site 3	0.11
Addition Site 4	0.25
SMC Adj. Former Pratt	2.24
SMC Northeast Campus Corner	4.03

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
Jun-02	JUNCTION	477.75	482.25	0.00	
Jun-03	JUNCTION	479.14	485.04	0.00	
Jun-05	JUNCTION	480.58	484.73	0.00	
Jun-06	JUNCTION	480.66	484.91	0.00	
Jun-07	JUNCTION	478.45	482.50	0.00	
Jun-10	JUNCTION	479.35	486.00	0.00	
Jun-11	JUNCTION	480.10	483.40	0.00	
Jun-12	JUNCTION	479.85	483.15	0.00	
Jun-13	JUNCTION	479.25	483.85	0.00	
Jun-01	OUTFALL	474.18	475.06	0.00	

****

Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Link-01	Jun-02	Jun-01	CONDUIT	398.6	0.8830	0.0130
Link-05	Jun-06	Jun-05	CONDUIT	18.2	0.1649	0.0130
Link-06	Jun-07	Jun-02	CONDUIT	43.2	1.6219	0.0130
Link-07	Jun-03	Jun-07	CONDUIT	42.1	1.6390	0.0130
Link-11	Jun-10	Jun-03	CONDUIT	80.3	0.2616	0.0130
Link-12	Jun-05	Jun-11	CONDUIT	132.0	0.3636	0.0130
Link-13	Jun-11	Jun-12	CONDUIT	72.5	0.3448	0.0130
Link-14	Jun-12	Jun-13	CONDUIT	154.1	0.3894	0.0130
Link-15	Jun-13	Jun-03	CONDUIT	20.9	0.5258	0.0130

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter ft	Width ft	No. of Barrels	Cross Sectional Area ft²	Full Flow Hydraulic Radius ft	Design Flow Capacity cfs
Link-01	CIRCULAR	0.83	0.83	1	0.55	0.21	2.06
Link-05	CIRCULAR	1.00	1.00	1	0.79	0.25	1.45
Link-06	CIRCULAR	0.83	0.83	1	0.55	0.21	2.79
Link-07	CIRCULAR	1.25	1.25	1	1.23	0.31	8.27
Link-11	CIRCULAR	1.25	1.25	1	1.23	0.31	3.30
Link-12	CIRCULAR	1.50	1.50	1	1.77	0.38	6.33
Link-13	CIRCULAR	1.50	1.50	1	1.77	0.38	6.17
Link-14	CIRCULAR	1.50	1.50	1	1.77	0.38	6.55
Link-15	CIRCULAR	1.50	1.50	1	1.77	0.38	7.62

********** Runoff Quantity Continuity **********	Volume acre-ft	Depth inches
Total Precipitation	1.196	2.025
Surface Runoff	0.088	0.150
Continuity Error (%)	-0.002	

********** Flow Routing Continuity **********	Volume acre-ft	Volume Mgallons
External Inflow	0.000	0.000
External Outflow	0.660	0.215
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.001	0.000
Continuity Error (%)	-0.015	

****
Composite Curve Number Computations Report
****

Subbasin Addition Site 1

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking & roofs	0.05	C	98.00
> 75% grass cover, Good	0.02	C	74.00
Composite Area & Weighted CN	0.07		91.34

Subbasin Addition Site 2

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	0.23	C	98.00
Bioretention and Raingardens	0.02	B	60.00
Maternity Addition	0.14	C	98.00
Composite Area & Weighted CN	0.39		96.03

Subbasin Addition Site 3

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	0.10	C	98.00
Bioretention	0.01	B	60.00
Composite Area & Weighted CN	0.11		94.03

Subbasin Addition Site 4

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	0.24	C	98.00
Grass Area	0.01	C	74.00
Composite Area & Weighted CN	0.25		97.03

Subbasin SMC Adj. Former Pratt

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	0.47	C	98.00
SMC	1.22	C	98.00
Grass Areas	0.55	C	74.00
Composite Area & Weighted CN	2.24		92.10

Subbasin SMC Northeast Campus Corner

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	2.48	C	98.00
Parking Garage	0.97	C	98.00
MOB	0.34	C	98.00
Grass Areas	0.23	C	74.00

Composite Area & Weighted CN 4.03 96.63

```
************************************************
SCS TR-55 Time of Concentration Computations Report
************************************************

Sheet Flow Equation
-------------------

        Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

        Where:

        Tc = Time of Concentration (hrs)
        n  = Manning's Roughness
        Lf = Flow Length (ft)
        P  = 2 yr, 24 hr Rainfall (inches)
        Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation
----------------------------------

        V  = 16.1345 * (Sf^0.5) (unpaved surface)
        V  = 20.3282 * (Sf^0.5) (paved surface)
        V  = 15.0 * (Sf^0.5) (grassed waterway surface)
        V  = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
        V  = 9.0 * (Sf^0.5) (cultivated straight rows surface)
        V  = 7.0 * (Sf^0.5) (short grass pasture surface)
        V  = 5.0 * (Sf^0.5) (woodland surface)
        V  = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
        Tc = (Lf / V) / (3600 sec/hr)

        Where:

        Tc = Time of Concentration (hrs)
        Lf = Flow Length (ft)
        V  = Velocity (ft/sec)
        Sf = Slope (ft/ft)

Channel Flow Equation
---------------------

        V  = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
        R  = Aq / Wp
        Tc = (Lf / V) / (3600 sec/hr)

        Where:

        Tc = Time of Concentration (hrs)
        Lf = Flow Length (ft)
        R  = Hydraulic Radius (ft)
        Aq = Flow Area (ft²)
        Wp = Wetted Perimeter (ft)
        V  = Velocity (ft/sec)
        Sf = Slope (ft/ft)
        n  = Manning's Roughness

---------------------------
Subbasin Addition Site 1
---------------------------

        User-Defined TOC override (minutes):      1.10

---------------------------
Subbasin Addition Site 2
---------------------------
```

User-Defined TOC override (minutes): 1.78

Subbasin Addition Site 3

User-Defined TOC override (minutes): 1.08

Subbasin Addition Site 4

User-Defined TOC override (minutes): 1.65

Subbasin SMC Adj. Former Pratt

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	140.00	0.00	0.00
Slope (%):	0.50	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.50	0.00	0.00
Velocity (ft/sec):	0.81	0.00	0.00
Computed Flow Time (minutes):	2.89	0.00	0.00

Channel Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	460.00	0.00	0.00
Channel Slope (%):	1.00	0.00	0.00
Cross Section Area (ft^2):	0.27	0.00	0.00
Wetted Perimeter (ft):	1.30	0.00	0.00
Velocity (ft/sec):	4.02	0.00	0.00
Computed Flow Time (minutes):	1.91	0.00	0.00

==========

Total TOC (minutes): 4.80

==========

Subbasin SMC Northeast Campus Corner

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	145.00	0.00	0.00
Slope (%):	1.50	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.50	0.00	0.00
Velocity (ft/sec):	1.26	0.00	0.00
Computed Flow Time (minutes):	1.92	0.00	0.00

Channel Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	715.00	0.00	0.00
Channel Slope (%):	0.50	0.00	0.00
Cross Section Area (ft²):	0.39	0.00	0.00
Wetted Perimeter (ft):	1.57	0.00	0.00
Velocity (ft/sec):	3.20	0.00	0.00
Computed Flow Time (minutes):	3.72	0.00	0.00

Total TOC (minutes):	5.64

****
Subbasin Runoff Summary
****

Subbasin ID	Total Precip in	Total Runoff in	Peak Runoff cfs	Weighted Curve Number	Time of Concentration days	Time of Concentration hh:mm:ss
Addition Site 1	2.00	1.18	0.13	91.340	0	00:10:00
Addition Site 2	2.00	1.58	0.80	96.030	0	00:10:00
Addition Site 3	2.00	1.39	0.22	94.030	0	00:10:00
Addition Site 4	2.00	1.67	0.54	97.030	0	00:10:00
SMC Adj. Former Pratt	2.00	1.25	3.83	92.100	0	00:10:00
SMC Northeast Campus Corner	2.00	1.64	8.60	96.630	0	00:10:00

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	Time of Max Occurrence hh:mm	Total Flooded Volume acre-in	Total Time Flooded minutes	Retention Time hh:mm:ss

Jun-02	0.29	3.75	481.50	0	11:51	0	0	0:00:00
Jun-03	0.23	3.96	483.10	0	12:05	0	0	0:00:00
Jun-05	0.21	4.10	484.68	0	12:39	0	0	0:00:00
Jun-06	0.28	4.25	484.91	0	11:56	0.50	16	0:00:00
Jun-07	0.27	4.05	482.50	0	11:51	0.97	32	0:00:00
Jun-10	0.09	3.75	483.10	0	12:05	0	0	0:00:00
Jun-11	0.23	3.30	483.40	0	11:51	0.27	19	0:00:00
Jun-12	0.23	3.30	483.15	0	11:51	1.09	23	0:00:00
Jun-13	0.25	3.87	483.12	0	12:05	0	0	0:00:00
Jun-01	0.00	0.00	474.18	0	00:00	0	0	0:00:00

Node Flow Summary

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	Time of Peak Inflow Occurrence hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	Time of Peak Flooding Occurrence hh:mm
Jun-02	JUNCTION	0.00	2.77	0	11:53	0.00		
Jun-03	JUNCTION	3.79	5.50	0	12:04	0.00		
Jun-05	JUNCTION	0.00	23.34	0	12:39	0.00		
Jun-06	JUNCTION	8.43	15.51	0	12:40	3.22	0	12:04
Jun-07	JUNCTION	0.00	5.42	0	12:05	2.66	0	12:05
Jun-10	JUNCTION	0.12	0.54	0	12:40	0.00		
Jun-11	JUNCTION	0.53	8.06	0	12:39	1.56	0	11:51
Jun-12	JUNCTION	0.79	5.81	0	12:40	4.03	0	12:06
Jun-13	JUNCTION	0.22	5.01	0	12:40	0.00		
Jun-01	OUTFALL	0.00	2.76	0	11:55	0.00		

Outfall Loading Summary

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
Jun-01	97.25	0.43	2.76
System	97.25	0.43	2.76

Link Flow Summary

Link ID	Element Type	Time of Peak Flow Occurrence days hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Depth	Total Reported Time minutes	Surcharged

Link-01		CONDUIT	0	11:55	5.19	1.00	2.76	2.06	1.34
0.94	0	> CAPACITY							
Link-05		CONDUIT	0	12:39	37.53	1.00	22.52	1.45	15.56
1.00	48	SURCHARGED							
Link-06		CONDUIT	0	11:53	5.07	1.00	2.77	2.79	0.99
1.00	63	SURCHARGED							
Link-07		CONDUIT	0	12:05	4.42	1.00	5.42	8.27	0.66
1.00	56	SURCHARGED							
Link-11		CONDUIT	0	12:40	0.78	1.00	0.53	3.30	0.16
1.00	54	SURCHARGED							
Link-12		CONDUIT	0	12:39	4.53	1.00	8.01	6.33	1.26
1.00	48	SURCHARGED							
Link-13		CONDUIT	0	12:40	3.25	1.00	5.74	6.17	0.93
1.00	49	SURCHARGED							
Link-14		CONDUIT	0	12:40	2.88	1.00	4.99	6.55	0.76
1.00	50	SURCHARGED							
Link-15		CONDUIT	0	12:40	2.88	1.00	4.20	7.62	0.55
1.00	53	SURCHARGED							

```
  ********************************
  Highest Flow Instability Indexes
  ********************************
  All links are stable.

  WARNING 107 : Initial water surface elevation defined for Junction Jun-02 is below junction
invert elevation.
                Assumed initial water surface elevation equal to invert elevation.
  WARNING 108 : Surcharge elevation defined for Junction Jun-02 is below junction maximum
elevation. Assumed surcharge elevation equal to maximum elevation.
  WARNING 116 : Conduit inlet invert elevation defined for Conduit Link-01 is below upstream node
invert elevation.
                Assumed conduit inlet invert elevation equal to upstream node invert elevation.

  Analysis began on:  Mon Dec 21 14:05:04 2015
  Analysis ended on:  Mon Dec 21 14:05:05 2015
  Total elapsed time: 00:00:01
```

Autodesk® Storm and Sanitary Analysis 2015 - Version 9.1.140 (Build 1)

****
Project Description
****
File Name ..... Postdevelopment.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. SCS TR-20
Time of Concentration..... SCS TR-55
Link Routing Method ..... Hydrodynamic
Storage Node Exfiltration.. Constant rate, wetted area
Starting Date NOV-01-2015 00:00:00
Ending Date NOV-02-2015 00:00:00
Report Time Step 00:05:00

****
Element Count
****
Number of rain gages 1
Number of subbasins 6
Number of nodes 10
Number of links 9

****
Subbasin Summary
****

Subbasin ID	Total Area acres
Addition Site 1	0.07
Addition Site 2	0.39
Addition Site 3	0.11
Addition Site 4	0.25
SMC Adj. Former Pratt	2.24
SMC Northeast Campus Corner	4.03

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
Jun-02	JUNCTION	477.75	482.25	0.00	
Jun-03	JUNCTION	479.14	485.04	0.00	
Jun-05	JUNCTION	480.58	484.73	0.00	
Jun-06	JUNCTION	480.66	484.91	0.00	
Jun-07	JUNCTION	478.45	482.50	0.00	
Jun-10	JUNCTION	479.35	486.00	0.00	
Jun-11	JUNCTION	480.10	483.40	0.00	
Jun-12	JUNCTION	479.85	483.15	0.00	
Jun-13	JUNCTION	479.25	483.85	0.00	
Jun-01	OUTFALL	474.18	475.06	0.00	

****

Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Link-01	Jun-02	Jun-01	CONDUIT	398.6	0.8830	0.0130
Link-05	Jun-06	Jun-05	CONDUIT	18.2	0.1649	0.0130
Link-06	Jun-07	Jun-02	CONDUIT	43.2	1.6219	0.0130
Link-07	Jun-03	Jun-07	CONDUIT	42.1	1.6390	0.0130
Link-11	Jun-10	Jun-03	CONDUIT	80.3	0.2616	0.0130
Link-12	Jun-05	Jun-11	CONDUIT	132.0	0.3636	0.0130
Link-13	Jun-11	Jun-12	CONDUIT	72.5	0.3448	0.0130
Link-14	Jun-12	Jun-13	CONDUIT	154.1	0.3894	0.0130
Link-15	Jun-13	Jun-03	CONDUIT	20.9	0.5258	0.0130

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter ft	Width ft	No. of Barrels	Cross Sectional Area ft²	Full Flow Hydraulic Radius ft	Design Flow Capacity cfs
Link-01	CIRCULAR	0.83	0.83	1	0.55	0.21	2.06
Link-05	CIRCULAR	1.00	1.00	1	0.79	0.25	1.45
Link-06	CIRCULAR	0.83	0.83	1	0.55	0.21	2.79
Link-07	CIRCULAR	1.25	1.25	1	1.23	0.31	8.27
Link-11	CIRCULAR	1.25	1.25	1	1.23	0.31	3.30
Link-12	CIRCULAR	1.50	1.50	1	1.77	0.38	6.33
Link-13	CIRCULAR	1.50	1.50	1	1.77	0.38	6.17
Link-14	CIRCULAR	1.50	1.50	1	1.77	0.38	6.55
Link-15	CIRCULAR	1.50	1.50	1	1.77	0.38	7.62

********** Runoff Quantity Continuity **********	Volume acre-ft	Depth inches
Total Precipitation	2.033	3.442
Surface Runoff	0.168	0.285
Continuity Error (%)	-0.003	

********** Flow Routing Continuity **********	Volume acre-ft	Volume Mgallons
External Inflow	0.000	0.000
External Outflow	1.114	0.363
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.002	0.001
Continuity Error (%)	-0.020	

****
Composite Curve Number Computations Report
****

Subbasin Addition Site 1

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking & roofs	0.05	C	98.00
> 75% grass cover, Good	0.02	C	74.00
Composite Area & Weighted CN	0.07		91.34

Subbasin Addition Site 2

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	0.23	C	98.00
Bioretention and Raingardens	0.02	B	60.00
Maternity Addition	0.14	C	98.00
Composite Area & Weighted CN	0.39		96.03

Subbasin Addition Site 3

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	0.10	C	98.00
Bioretention	0.01	B	60.00
Composite Area & Weighted CN	0.11		94.03

Subbasin Addition Site 4

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	0.24	C	98.00
Grass Area	0.01	C	74.00
Composite Area & Weighted CN	0.25		97.03

Subbasin SMC Adj. Former Pratt

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	0.47	C	98.00
SMC	1.22	C	98.00
Grass Areas	0.55	C	74.00
Composite Area & Weighted CN	2.24		92.10

Subbasin SMC Northeast Campus Corner

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	2.48	C	98.00
Parking Garage	0.97	C	98.00
MOB	0.34	C	98.00
Grass Areas	0.23	C	74.00

Composite Area & Weighted CN 4.03 96.63

```
************************************************
SCS TR-55 Time of Concentration Computations Report
************************************************

Sheet Flow Equation
-------------------

        Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

        Where:

        Tc = Time of Concentration (hrs)
        n  = Manning's Roughness
        Lf = Flow Length (ft)
        P  = 2 yr, 24 hr Rainfall (inches)
        Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation
----------------------------------

        V  = 16.1345 * (Sf^0.5) (unpaved surface)
        V  = 20.3282 * (Sf^0.5) (paved surface)
        V  = 15.0 * (Sf^0.5) (grassed waterway surface)
        V  = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
        V  = 9.0 * (Sf^0.5) (cultivated straight rows surface)
        V  = 7.0 * (Sf^0.5) (short grass pasture surface)
        V  = 5.0 * (Sf^0.5) (woodland surface)
        V  = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
        Tc = (Lf / V) / (3600 sec/hr)

        Where:

        Tc = Time of Concentration (hrs)
        Lf = Flow Length (ft)
        V  = Velocity (ft/sec)
        Sf = Slope (ft/ft)

Channel Flow Equation
---------------------

        V  = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
        R  = Aq / Wp
        Tc = (Lf / V) / (3600 sec/hr)

        Where:

        Tc = Time of Concentration (hrs)
        Lf = Flow Length (ft)
        R  = Hydraulic Radius (ft)
        Aq = Flow Area (ft²)
        Wp = Wetted Perimeter (ft)
        V  = Velocity (ft/sec)
        Sf = Slope (ft/ft)
        n  = Manning's Roughness

---------------------------
Subbasin Addition Site 1
---------------------------

        User-Defined TOC override (minutes):      1.10

---------------------------
Subbasin Addition Site 2
---------------------------
```

User-Defined TOC override (minutes): 1.78

Subbasin Addition Site 3

User-Defined TOC override (minutes): 1.08

Subbasin Addition Site 4

User-Defined TOC override (minutes): 1.65

Subbasin SMC Adj. Former Pratt

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	140.00	0.00	0.00
Slope (%):	0.50	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.50	0.00	0.00
Velocity (ft/sec):	0.81	0.00	0.00
Computed Flow Time (minutes):	2.89	0.00	0.00

Channel Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	460.00	0.00	0.00
Channel Slope (%):	1.00	0.00	0.00
Cross Section Area (ft²):	0.27	0.00	0.00
Wetted Perimeter (ft):	1.30	0.00	0.00
Velocity (ft/sec):	4.02	0.00	0.00
Computed Flow Time (minutes):	1.91	0.00	0.00

==========

Total TOC (minutes): 4.80

==========

Subbasin SMC Northeast Campus Corner

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	145.00	0.00	0.00
Slope (%):	1.50	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.50	0.00	0.00
Velocity (ft/sec):	1.26	0.00	0.00
Computed Flow Time (minutes):	1.92	0.00	0.00

Channel Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	715.00	0.00	0.00
Channel Slope (%):	0.50	0.00	0.00
Cross Section Area (ft²):	0.39	0.00	0.00
Wetted Perimeter (ft):	1.57	0.00	0.00
Velocity (ft/sec):	3.20	0.00	0.00
Computed Flow Time (minutes):	3.72	0.00	0.00

Total TOC (minutes):	5.64

****
Subbasin Runoff Summary
****

Subbasin ID	Total Precip in	Total Runoff in	Peak Runoff cfs	Weighted Curve Number	Time of Concentration days	Time of Concentration hh:mm:ss
Addition Site 1	3.40	2.47	0.26	91.340	0	00:10:00
Addition Site 2	3.40	2.95	1.45	96.030	0	00:10:00
Addition Site 3	3.40	2.73	0.41	94.030	0	00:10:00
Addition Site 4	3.40	3.06	0.96	97.030	0	00:10:00
SMC Adj. Former Pratt	3.40	2.55	7.63	92.100	0	00:10:00
SMC Northeast Campus Corner	3.40	3.02	15.33	96.630	0	00:10:00

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	Time of Max Occurrence hh:mm	Total Flooded Volume acre-in	Total Time Flooded minutes	Retention Time hh:mm:ss

Jun-02	0.36	3.69	481.44	0	11:47	0	0	0:00:00
Jun-03	0.29	4.10	483.24	0	12:05	0	0	0:00:00
Jun-05	0.25	3.28	483.86	0	11:49	0	0	0:00:00
Jun-06	0.34	4.25	484.91	0	11:49	2.26	26	0:00:00
Jun-07	0.34	4.05	482.50	0	11:47	1.78	55	0:00:00
Jun-10	0.12	3.90	483.25	0	12:05	0	0	0:00:00
Jun-11	0.28	3.30	483.40	0	11:48	0.52	29	0:00:00
Jun-12	0.28	3.30	483.15	0	11:47	2.66	36	0:00:00
Jun-13	0.31	3.98	483.23	0	12:05	0	0	0:00:00
Jun-01	0.00	0.00	474.18	0	00:00	0	0	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	Time of Peak Inflow Occurrence hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	Time of Peak Flooding Occurrence hh:mm
Jun-02	JUNCTION	0.00	2.78	0	11:47	0.00		
Jun-03	JUNCTION	7.48	7.68	0	12:04	0.00		
Jun-05	JUNCTION	0.00	5.17	0	11:52	0.00		
Jun-06	JUNCTION	14.92	14.92	0	12:04	9.73	0	12:05
Jun-07	JUNCTION	0.00	6.03	0	12:05	3.27	0	12:05
Jun-10	JUNCTION	0.25	0.42	0	11:47	0.00		
Jun-11	JUNCTION	0.93	6.10	0	12:04	1.45	0	12:05
Jun-12	JUNCTION	1.41	7.97	0	12:05	7.96	0	12:05
Jun-13	JUNCTION	0.41	3.58	0	11:47	0.00		
Jun-01	OUTFALL	0.00	2.76	0	11:47	0.00		

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
Jun-01	98.54	0.62	2.76
System	98.54	0.62	2.76

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Depth	Total Reported Condition Time minutes

Link-01		CONDUIT	0	11:47	5.19	1.00	2.76	2.06	1.34
0.94	0	> CAPACITY							
Link-05		CONDUIT	0	11:52	6.59	1.00	5.17	1.45	3.57
1.00	86	SURCHARGED							
Link-06		CONDUIT	0	11:47	5.10	1.00	2.78	2.79	1.00
1.00	106	SURCHARGED							
Link-07		CONDUIT	0	12:05	4.91	1.00	6.03	8.27	0.73
1.00	96	SURCHARGED							
Link-11		CONDUIT	0	11:47	0.64	1.00	0.36	3.30	0.11
1.00	94	SURCHARGED							
Link-12		CONDUIT	0	11:49	2.93	1.00	5.18	6.33	0.82
1.00	84	SURCHARGED							
Link-13		CONDUIT	0	11:58	2.95	1.00	4.65	6.17	0.75
1.00	86	SURCHARGED							
Link-14		CONDUIT	0	11:47	2.75	1.00	3.47	6.55	0.53
1.00	87	SURCHARGED							
Link-15		CONDUIT	0	12:24	2.85	1.00	3.11	7.62	0.41
1.00	92	SURCHARGED							

```
  ********************************
  Highest Flow Instability Indexes
  ********************************
  All links are stable.

  WARNING 107 : Initial water surface elevation defined for Junction Jun-02 is below junction
invert elevation.
                Assumed initial water surface elevation equal to invert elevation.
  WARNING 108 : Surcharge elevation defined for Junction Jun-02 is below junction maximum
elevation. Assumed surcharge elevation equal to maximum elevation.
  WARNING 116 : Conduit inlet invert elevation defined for Conduit Link-01 is below upstream node
invert elevation.
                Assumed conduit inlet invert elevation equal to upstream node invert elevation.

  Analysis began on:  Mon Dec 21 14:09:05 2015
  Analysis ended on:  Mon Dec 21 14:09:06 2015
  Total elapsed time: 00:00:01
```

Autodesk® Storm and Sanitary Analysis 2015 - Version 9.1.140 (Build 1)

****
Project Description
****
File Name ..... Postdevelopment.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. SCS TR-20
Time of Concentration..... SCS TR-55
Link Routing Method ..... Hydrodynamic
Storage Node Exfiltration.. Constant rate, wetted area
Starting Date NOV-01-2015 00:00:00
Ending Date NOV-02-2015 00:00:00
Report Time Step 00:05:00

****
Element Count
****
Number of rain gages 1
Number of subbasins 6
Number of nodes 10
Number of links 9

****
Subbasin Summary
****

Subbasin ID	Total Area acres
Addition Site 1	0.07
Addition Site 2	0.39
Addition Site 3	0.11
Addition Site 4	0.25
SMC Adj. Former Pratt	2.24
SMC Northeast Campus Corner	4.03

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
Jun-02	JUNCTION	477.75	482.25	0.00	
Jun-03	JUNCTION	479.14	485.04	0.00	
Jun-05	JUNCTION	480.58	484.73	0.00	
Jun-06	JUNCTION	480.66	484.91	0.00	
Jun-07	JUNCTION	478.45	482.50	0.00	
Jun-10	JUNCTION	479.35	486.00	0.00	
Jun-11	JUNCTION	480.10	483.40	0.00	
Jun-12	JUNCTION	479.85	483.15	0.00	
Jun-13	JUNCTION	479.25	483.85	0.00	
Jun-01	OUTFALL	474.18	475.06	0.00	

****

Link Summary

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Link-01	Jun-02	Jun-01	CONDUIT	398.6	0.8830	0.0130
Link-05	Jun-06	Jun-05	CONDUIT	18.2	0.1649	0.0130
Link-06	Jun-07	Jun-02	CONDUIT	43.2	1.6219	0.0130
Link-07	Jun-03	Jun-07	CONDUIT	42.1	1.6390	0.0130
Link-11	Jun-10	Jun-03	CONDUIT	80.3	0.2616	0.0130
Link-12	Jun-05	Jun-11	CONDUIT	132.0	0.3636	0.0130
Link-13	Jun-11	Jun-12	CONDUIT	72.5	0.3448	0.0130
Link-14	Jun-12	Jun-13	CONDUIT	154.1	0.3894	0.0130
Link-15	Jun-13	Jun-03	CONDUIT	20.9	0.5258	0.0130

Cross Section Summary

Link ID	Shape	Depth/ Diameter ft	Width ft	No. of Barrels	Cross Sectional Area ft²	Full Flow Hydraulic Radius ft	Design Flow Capacity cfs
Link-01	CIRCULAR	0.83	0.83	1	0.55	0.21	2.06
Link-05	CIRCULAR	1.00	1.00	1	0.79	0.25	1.45
Link-06	CIRCULAR	0.83	0.83	1	0.55	0.21	2.79
Link-07	CIRCULAR	1.25	1.25	1	1.23	0.31	8.27
Link-11	CIRCULAR	1.25	1.25	1	1.23	0.31	3.30
Link-12	CIRCULAR	1.50	1.50	1	1.77	0.38	6.33
Link-13	CIRCULAR	1.50	1.50	1	1.77	0.38	6.17
Link-14	CIRCULAR	1.50	1.50	1	1.77	0.38	6.55
Link-15	CIRCULAR	1.50	1.50	1	1.77	0.38	7.62

Runoff Quantity Continuity	Volume acre-ft	Depth inches
Total Precipitation	3.437	5.821
Surface Runoff	0.304	0.516
Continuity Error (%)	-0.003	

Flow Routing Continuity	Volume acre-ft	Volume Mgallons
External Inflow	0.000	0.000
External Outflow	1.790	0.583
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.003	0.001
Continuity Error (%)	-0.013	

****
Composite Curve Number Computations Report
****

Subbasin Addition Site 1

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking & roofs	0.05	C	98.00
> 75% grass cover, Good	0.02	C	74.00
Composite Area & Weighted CN	0.07		91.34

Subbasin Addition Site 2

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	0.23	C	98.00
Bioretention and Raingardens	0.02	B	60.00
Maternity Addition	0.14	C	98.00
Composite Area & Weighted CN	0.39		96.03

Subbasin Addition Site 3

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	0.10	C	98.00
Bioretention	0.01	B	60.00
Composite Area & Weighted CN	0.11		94.03

Subbasin Addition Site 4

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	0.24	C	98.00
Grass Area	0.01	C	74.00
Composite Area & Weighted CN	0.25		97.03

Subbasin SMC Adj. Former Pratt

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	0.47	C	98.00
SMC	1.22	C	98.00
Grass Areas	0.55	C	74.00
Composite Area & Weighted CN	2.24		92.10

Subbasin SMC Northeast Campus Corner

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking	2.48	C	98.00
Parking Garage	0.97	C	98.00
MOB	0.34	C	98.00
Grass Areas	0.23	C	74.00

Composite Area & Weighted CN 4.03 96.63

****
SCS TR-55 Time of Concentration Computations Report
****

Sheet Flow Equation

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where:

Tc = Time of Concentration (hrs)
n = Manning's Roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hrs)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hrs)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's Roughness

Subbasin Addition Site 1

User-Defined TOC override (minutes): 1.10

Subbasin Addition Site 2

User-Defined TOC override (minutes): 1.78

Subbasin Addition Site 3

User-Defined TOC override (minutes): 1.08

Subbasin Addition Site 4

User-Defined TOC override (minutes): 1.65

Subbasin SMC Adj. Former Pratt

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	140.00	0.00	0.00
Slope (%):	0.50	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.50	0.00	0.00
Velocity (ft/sec):	0.81	0.00	0.00
Computed Flow Time (minutes):	2.89	0.00	0.00

Channel Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	460.00	0.00	0.00
Channel Slope (%):	1.00	0.00	0.00
Cross Section Area (ft²):	0.27	0.00	0.00
Wetted Perimeter (ft):	1.30	0.00	0.00
Velocity (ft/sec):	4.02	0.00	0.00
Computed Flow Time (minutes):	1.91	0.00	0.00

==========

Total TOC (minutes): 4.80

==========

Subbasin SMC Northeast Campus Corner

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	145.00	0.00	0.00
Slope (%):	1.50	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.50	0.00	0.00
Velocity (ft/sec):	1.26	0.00	0.00
Computed Flow Time (minutes):	1.92	0.00	0.00

Channel Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	715.00	0.00	0.00
Channel Slope (%):	0.50	0.00	0.00
Cross Section Area (ft²):	0.39	0.00	0.00
Wetted Perimeter (ft):	1.57	0.00	0.00
Velocity (ft/sec):	3.20	0.00	0.00
Computed Flow Time (minutes):	3.72	0.00	0.00

Total TOC (minutes):	5.64

****
Subbasin Runoff Summary
****

Subbasin ID	Total Precip in	Total Runoff in	Peak Runoff cfs	Weighted Curve Number	Time of Concentration days	Time of Concentration hh:mm:ss
Addition Site 1	5.75	4.74	0.48	91.340	0	00:10:00
Addition Site 2	5.75	5.28	2.51	96.030	0	00:10:00
Addition Site 3	5.75	5.05	0.74	94.030	0	00:10:00
Addition Site 4	5.75	5.40	1.64	97.030	0	00:10:00
SMC Adj. Former Pratt	5.75	4.84	13.97	92.100	0	00:10:00
SMC Northeast Campus Corner	5.75	5.35	26.44	96.630	0	00:10:00

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	Time of Max Occurrence hh:mm	Total Flooded Volume acre-in	Total Flooded Time minutes	Retention Time hh:mm:ss

Jun-02	0.48	3.67	481.42	0	11:34	0	0	0:00:00
Jun-03	0.38	4.88	484.02	0	12:04	0	0	0:00:00
Jun-05	0.31	3.28	483.86	0	11:44	0	0	0:00:00
Jun-06	0.42	4.25	484.91	0	11:44	5.78	36	0:00:00
Jun-07	0.46	4.05	482.50	0	11:34	3.53	99	0:00:00
Jun-10	0.18	4.68	484.03	0	12:05	0	0	0:00:00
Jun-11	0.36	3.30	483.40	0	11:42	0.89	41	0:00:00
Jun-12	0.35	3.30	483.15	0	11:38	5.31	60	0:00:00
Jun-13	0.40	4.58	483.83	0	12:05	0	0	0:00:00
Jun-01	0.00	0.00	474.18	0	00:00	0	0	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	hh:mm
Jun-02	JUNCTION	0.00	2.76	0	11:34	0.00		
Jun-03	JUNCTION	13.67	14.07	0	12:04	0.00		
Jun-05	JUNCTION	0.00	5.17	0	11:46	0.00		
Jun-06	JUNCTION	25.87	25.87	0	12:04	20.58	0	12:04
Jun-07	JUNCTION	0.00	8.63	0	12:05	5.87	0	12:05
Jun-10	JUNCTION	0.47	0.47	0	12:04	0.00		
Jun-11	JUNCTION	1.60	6.77	0	12:04	2.11	0	12:04
Jun-12	JUNCTION	2.45	13.04	0	12:05	13.04	0	12:05
Jun-13	JUNCTION	0.72	6.01	0	12:04	0.00		
Jun-01	OUTFALL	0.00	2.76	0	11:34	0.00		

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
Jun-01	99.17	0.87	2.76
System	99.17	0.87	2.76

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days	hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Total Reported Condition	Maximum Depth	Time Surcharged minutes

```
  Link-01              CONDUIT      0  11:34      5.19    1.00        2.76        2.06      1.34
0.94           0  > CAPACITY
  Link-05              CONDUIT      0  11:46      6.59    1.00        5.17        1.45      3.57
1.00         160  SURCHARGED
  Link-06              CONDUIT      0  11:34      5.07    1.00        2.76        2.79      0.99
1.00         201  SURCHARGED
  Link-07              CONDUIT      0  12:05      7.03    1.00        8.63        8.27      1.04
1.00         179  SURCHARGED
  Link-11              CONDUIT      0  12:06      0.54    1.00        0.54        3.30      0.16
1.00         174  SURCHARGED
  Link-12              CONDUIT      0  11:45      2.93    1.00        5.18        6.33      0.82
1.00         156  SURCHARGED
  Link-13              CONDUIT      0  11:52      2.70    1.00        4.65        6.17      0.75
1.00         160  SURCHARGED
  Link-14              CONDUIT      0  12:05      3.39    1.00        5.99        6.55      0.91
1.00         162  SURCHARGED
  Link-15              CONDUIT      0  12:04      2.99    1.00        5.28        7.62      0.69
1.00         171  SURCHARGED


  ********************************
  Highest Flow Instability Indexes
  ********************************
  All links are stable.

  WARNING 107 : Initial water surface elevation defined for Junction Jun-02 is below junction
invert elevation.
                Assumed initial water surface elevation equal to invert elevation.
  WARNING 108 : Surcharge elevation defined for Junction Jun-02 is below junction maximum
elevation. Assumed surcharge elevation equal to maximum elevation.
  WARNING 116 : Conduit inlet invert elevation defined for Conduit Link-01 is below upstream node
invert elevation.
                Assumed conduit inlet invert elevation equal to upstream node invert elevation.

  Analysis began on:  Mon Dec 21 14:11:33 2015
  Analysis ended on:  Mon Dec 21 14:11:34 2015
  Total elapsed time: 00:00:01
```

APPENDIX D
PARKING ANALYSIS

Samaritan Medical Center
Women and Children Addition
Complex Wide Parking Analysis
Summary Sheet

Samaritan Medical Center - Hospital

City Code Rule, Hospital: 1 space for each 2 beds, plus 5 spaces for each 1,000 feet of floor space dedicated to other principal or accessory uses

Bed Count	294	beds
Parking Spaces Required by Bed count	*147*	spaces
Parking Spaces Required by SQ. Footage	*1165*	*spaces*

Samaritan Keep Home - Nursing Home

City Code Rule, Nursing Home: 1 space for each 3 beds

Bed Count	272	beds
Parking Spaces Required by Bed count	*91*	*spaces*

TOTAL SPACES REQUIRED COMPLEX WIDE:	**1403**	**spaces**
SPACES REQUIRED NOT INCLUDING MOB:	1184	spaces
TOTAL SPACES PROVIDED COMPLEX WIDE:	**1254**	**spaces**
TOTAL SPACES PROVIDED PRIOR TO RENOVATIONS:	1280	spaces

Samaritan Medical Center
Women and Children Addition
Complex Wide Parking Analysis
Square Footage Analysis

Gross square footage:

SMC Floor 1	93170	sq.ft.
SMC Floor 2	50110	sq.ft.
SMC Floor 3	39490	sq.ft.
SMC Floor 4	29710	sq.ft.
SMC Floor 5	29880	sq.ft.
SMC Floor 6	12980	sq.ft.
SMC Floor 7	1700	sq.ft.
SMC Floor 8	1700	sq.ft.
SMC TOTAL:	**258740**	**sq.ft.**
Patient Pavillion Floor 1	41429	sq.ft.
Patient Pavillion Floor 2	40319	sq.ft.
Patient Pavillion Floor 3	22207	sq.ft.
Patient Pavillion Floor 4	21519	sq.ft.
Patient Pavillion Floor 5	1500	sq.ft.
Patient Pavillion Total:	**126974**	**sq.ft.**
MOB Floor 1	14033	sq.ft.
MOB Floor 2	14033	sq.ft.
MOB Floor 3	15703	sq.ft.
MOB Total:	**43769**	**sq.ft.**
IMHU Addition Floor 1:	5400	sq.ft.
IMHU Addition Floor 2:	5400	sq.ft.
IMHU Addition Floor 3:	4550	sq.ft.
IMHU Addition Floor 4:	1600	sq.ft.
IMHU Addition Total:	**16950**	**sq.ft.**
Subtract connector sqft:		
Connector 1st Floor (Sam Keep)	4439	sq.ft.
Connector 2nd Floor (Sam Keep)	5707	sq.ft.
Connector Total:	**10146**	**sq.ft.**
TOTAL GROSS SQ. FOOTAGE:	436287	sq.ft.
TOTAL BED SPACE	203301	sq.ft.
TOTAL ACCESSORY SPACE	232986	sq.ft.
Spaces Required	**1165**	**spaces**

Bed Space:

Emergency	19412	sq.ft.
IMHU (Addition Floor 2)	4550	sq.ft.
Impatient Mental Health	12025	sq.ft.
Operating Suite	32868	sq.ft.
Radiology	20678	sq.ft.
Maternity (Addition Floor 3)	19257	sq.ft.
Neonatal	3390	sq.ft.
Future Pharmacy	3660	sq.ft.
Physical Medicne/Rehab.	8161	sq.ft.
Progressive Care Unit	13809	sq.ft.
Intensive Care Unit	5095	sq.ft.
Respiratory Care	923	sq.ft.
Pediadrics	11660	sq.ft.
ALC ARU Unit	1430	sq.ft.
Acute Long Term Care Unit	12504	sq.ft.
Medical/Surgical Patient Unit	21519	sq.ft.
Orthopaedic Patient Unit	12360	sq.ft.
TOTAL BED SPACE	**203301**	**sq.ft.**

Samaritan Medical Center
Women and Children Addition
Complex Wide Parking Analysis
Existing Parking Tally

IMHU Site Reconfiguration	52
Parking Garage	392
Washington Street	252
Medical Office Building	19
Woodruff Street Parking	316
Other Sherman Street	139
Former Pratt Street	84
TOTAL PARKING PROVIDED	**1254**

Note: 26 spaces are eliminated with the building addition