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State University of New York at Canton
Campus Wide Site Utility Study
SUCF Project No. 23206
Phase III- Implementation Plan

Village of Canton
St. Lawrence County, New York

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**SUNY CANTON CAMPUS WIDE SITE UTILITY ASSESSMENT
PHASE III - IMPLEMENTATION PLAN**

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1.0 EXECUTIVE SUMMARY

C.T. Male Associates (C.T. Male) was retained by the State University Construction Fund (SUCF) to perform site utility assessments and to complete a topographic and utility survey at SUNY Canton under SUCF project number 23206. Phase 1 of the project included a field survey, data collection and mapping. The site utility assessments were part of Phase II of the project and include condition and capacity assessments, as well as recommended improvements. The following systems were studied as part of Phase II and were submitted under separate cover:

- Sanitary Sewer System Analysis, prepared by C.T. Male Associates, dated October 24, 2012.
- Stormwater System Analysis, prepared by C.T. Male Associates, dated October 24, 2012.
- Water System Assessment, prepared by C.T. Male Associates, dated April 29, 2013.
- Fire Protection System Analysis, prepared by Plumb Excel Group, dated April 26, 2013.
- Electrical System Analysis, prepared by C.T. Male Associates, dated November 5, 2012.
- Communications System Analysis, prepared by Fiberdyne Labs Inc, dated October 24, 2012.
- Natural Gas Distribution System Analysis, prepared by Plumb Excel Group, dated October 24, 2012.
- Fuel Systems Assessment Report, prepared by C.T. Male Associates, dated July 16, 2012.
- Pavement and Hardscape Analysis, prepared by C.T. Male Associates, dated August 6, 2012.
- Landscaping and Site Amenities Inventory and Analysis, prepared by C.T. Male Associates, dated November 26, 2012.
- Site Lighting Analysis, prepared by C.T. Male Associates, dated November 5, 2012.

The utility assessments included comprehensive analyses of the systems' existing conditions and capacities, as well as recommendations to upgrade and revamp them. The existing conditions assessments included survey, testing, mapping, visual assessments and modeling of the systems, where applicable. Deficiencies, capacity issues and future needs were then determined, along with recommended improvements. C.T. Male worked with a team of qualified subconsultants to assist with the assessments. Savin

Engineers, P.C. performed cleaning and televising of the sanitary and storm sewers across the Campus. Fiberdyne Labs Inc. prepared the Communication System Analysis. Plumb Excel Group prepared the Natural Gas Distribution System and Fire Protection System Analyses.

The Implementation Plan summarizes the recommended improvements and will provide a strategy for prioritizing and phasing the work. The Facility Master Plan for SUNY Canton, performed under SUCF project number 23822 by Architectural Resources dated September 16, 2011, was taken into consideration when developing the phasing plan. The improvements will be broken down into three phases (Phase 1, 2 and 3). Phase 1 improvements are considered highest priority that should be implemented in the next five years (2013-2017). Phase 2 improvements are the next highest priority and are recommended for completion within six to ten years (2018-2022). A third phase of improvements considered long term is also identified. Budget level cost estimates are provided in Section 4.0 of this report.

To assist in illustrating the Phase 1 and 2 improvements, preliminary overview plans are provided as Figures 1 and 2. The plans show the location and extent of each item described in this report. Figure 3 and 4 include breakout schematic designs for Dana Hall/Parking Lot 5, and Parking Lot 1.

2.0 RECOMMENDED IMPROVEMENTS

This section provides a comprehensive summary of the recommended improvements outlined in the assessment reports. Prioritization and phasing to implement the recommended improvements will be discussed in Section 3.0.

2.1 Water System

The water system assessment report identified the following recommended improvements based upon the condition assessment and hydraulic modeling.

1. ***Increase the output of the Nevaldine pump station:*** The maximum theoretical output of the pump station is estimated at 900 gpm and could limit fireflow service to the buildings located in the upper zone. It is recommended that the output of the pump station be increased to at least 1,200 gpm to accommodate new construction within the upper pressure zone, as well as the potential for existing buildings to be retrofit for sprinklers. This increase in capacity could be accomplished by installing new appropriately sized pumps with variable frequency drives. The existing 300 gpm pumps could be maintained for domestic supply.

Based upon a visual assessment of the pump station, it is not likely that the existing Grundfos triplex booster pump setup could be easily expanded. The piping and pump arrangement is close to the wall, precluding expansion. The options for increasing the pump station output are limited, and will require a more detailed evaluation before any final recommendations can be made.

2. ***Replace master water meter pit:*** Consideration should be given to locating the meter pit at grade for ease of use and maintenance. This would include construction of a new meter located above ground, likely in a small vault. New piping would be constructed to accommodate the meter pit, with the existing pit abandoned.
3. ***Replace check valve cluster near Dana Hall:*** Possibly with a control valve or a check valve assembly within a vault, which would facilitate control of valving between the upper and lower pressure zones. The check valve assembly could be located within a vault, and would contain check valves, isolation valves with a bypass line. The existing check valve assembly would be abandoned.

4. Install code compliant backflow preventers at the following buildings. The size and orientation of each line is discussed with the Water System Report.

Table 1
Required Backflow Preventer Installations

Building	Required Backflow Prevention Device
Cook Hall	Install RPZ on Domestic Line
Chaney Dining Center	Install Double Check Valve on Domestic Line
Dana Hall	Install Double Check Valve on 3" Domestic Line
Faculty Office Building	Install Double Check Valves on Fire and Domestic Lines
French Hall	Install Double Check Valve on Domestic Line
Nevaldine - North	Install RPZ on Domestic Line
Nevaldine- South	Install RPZ on Domestic Line
Newell Hall	Install RPZ on Domestic Line #2
Payson Hall	Install Double Check Valve on Domestic Line
Southworth Library	Install Double Check Valve on Domestic Line
Wicks Hall	Install Double Check Valve on Domestic Line

5. ***Replace 2,650 feet of water main in poor condition:*** Based upon the results of hydrant flow testing, the water mains located from pump station north to Dana Hall were determined to be in poor condition, with age and tuberculation significantly restricting pipe capacity and increasing the potential for water main breaks. Replacement will be with 10 inch ductile iron pipe and will include six hydrants, fifteen valves and new water services to all the buildings.
6. ***Second water supply connection to Village of Canton water system:*** The location of the second connection would most likely tie into the end of the 10" main constructed for Grasse River Suites, and extend south to Bird Street near the intersection with Hammond Drive. The total length of new main would be approximately 800 feet and would be recommended as 10" ductile iron pipe.
7. Install water meters at 19 Campus buildings, which includes all buildings except for CARC and Grasse River Suites, which contain meters. The meters could have the capability to be remotely read.

2.2 Sanitary Sewer System

The sanitary sewer assessment report identified the following recommended improvements to the sanitary sewer system based upon the condition and capacity assessments.

1. ***Replace 2,300 feet of sanitary sewer in poor condition:*** Pipes identified as being in poor condition based upon the CCTV inspection are recommended to be replaced with the same size PVC sewer pipe. This is due to the fact that sewer discharges are not expected to increase to the extent that an increase in sewer size is warranted. In total, it is recommended that approximately 2,300 feet of sewer be replaced, including:
 - 1,300 feet of 8" sewer;
 - 200 feet of 10" sewer;
 - 800 feet of 12" sewer.
2. ***Replace up to 20 sanitary manholes:*** Field Inspection of sewer manholes determined that they are generally in fair to good condition; however, due to their age and to the location of sewer mains in poor condition, it would be an opportune time to also replace the structures. Some of the manholes adjacent to pipes that are classified as being in poor condition are drop structures, and replacement of the pipes off a drop structure will require manhole replacement.
3. Investigate the sewer venting at the Miller Campus Center and the Cooper Service Building, since smoke was not detected at these locations at the time of smoke testing conducted by Savin Engineers.
4. ***Line the 12-inch cast iron pipe beneath Grasse River,*** a length of approximately 520 feet. Based upon the CCTV investigation, it was determined that the line under the river was in fair condition. Due to the fact that this line is critical for service, as it is the only line connecting the Campus system to the municipal sewer system, it is recommended that the CIP line be lined to increase the lifespan of the pipe and to prevent leaks or failures into the Grasse River. Lining of the pipe could be accomplished by a cured in place or slip lined system.
5. ***Address solids issues:*** The Campus was requested by the Village of Canton to investigate methods to prevent debris from entering their pump station, as it reportedly is causing clogging and pump damage. The most practical alternative would entail installation of a grinder system on the west side of the Grasse River,

within the line from SMH 1 to the wastewater pump station. Appendix A includes information on an inline grinder that could be installed in this location. The system could be constructed just downstream of SMH 1, via installation of a new manhole, bypass sewer line. New electrical service would be required to the grinder.

2.3 Storm Sewer System

The storm sewer assessment report identified the following recommended improvements to the storm sewer system based upon the condition and capacity assessments.

1. ***Replace 1,415 feet of storm sewer piping:*** Three pipes identified as being in poor condition are recommended to be replaced with the same size HDPE sewer pipe (or a minimum size of 12" HDPE if the existing pipe is smaller than 12 inches). The eight pipe runs identified as being under-sized and cannot pass the 10-year storm event will be up-sized to be able to accommodate the 10-year storm event. Table 2 shows the recommended replacements.

Table 2
Storm Sewer Replacement

<u>Structure ID From</u>	<u>Structure ID To</u>	<u>Length (ft)</u>	<u>Existing Size/Material</u>	<u>Proposed Size/Material</u>	<u>Purpose of Replacement</u>
26	21	335	18" VCP	24" HDPE	Upsize for Capacity
52	84	307	24" RCP	36" HDPE	Upsize for Capacity
56	61	86	18" VCP	24" HDPE	Upsize for Capacity
124	125	88	8" VCP	12" HDPE	Replace Pipe Poor Condition
125	127	70	15" RCP	15" HDPE	Replace Pipe Poor Condition
130	132	75	15" RCP	24" HDPE	Upsize for Capacity
167	308	167	24" RCP	36" HDPE	Upsize for Capacity
194	191	88	15" HDPE	24" HDPE	Upsize for Capacity
207	222	117	10" VCP	12" HDPE	Replace Pipe Poor Condition
241	242	62	24" CMP	36" HDPE	Upsize for Capacity
349	222	19	15" HDPE	24" HDPE	Upsize for Capacity

2. ***Replace 9 Storm Sewer Structures:*** Replace two catch basins, two drainage manholes and five end sections that were observed to be in poor condition. Table 3 shows the recommended replacements:

Table 3
Storm Structure Replacement

<u>Structure ID</u>	<u>Existing Size/Material</u>	<u>Proposed Size/Material</u>
ES 11	12" CMP end section	12" CMP end section
ES 244	Two-24" CMP end sections	Two-24" CMP end sections
ES 248	24" CMP end section	24" CMP end section
ES 249	24" CMP end section	24" CMP end section
ES 251	18" CMP end section	18" CMP end section
DMH 21	4' round concrete manhole	4' round concrete manhole
DMH 313	4' round concrete manhole	4' round concrete manhole
CB 187	4.5' square CMU catch basin	4' square concrete catch basin
CB 233	4' round concrete catch basin	4' square concrete catch basin

3. Implement a cleaning, inspection and flushing program for storm sewers. As part of the utility assessment, only a small percentage (approximately 1,500 feet) of the Campus's storm sewers were cleaned, inspected and flushed. Approximately 22,000 feet of storm sewers was not inspected. The Campus should clean, inspect by CCTV and flush storm sewers, dedicating a certain amount per year.

2.4 Electrical Distribution System

The electrical distribution system assessment report identified the following recommended based upon the condition and capacity assessments:

1. *Evaluate feasibility of connecting additional buildings to medium voltage distribution system:* Several buildings on campus are fed with secondary power from an adjacent building as follows:

- Wicks Hall – Receives power from Faculty Office Building.
- Cooper Service Complex and French Hall – Receive power from Nevaldine.
- Cook Hall – Receives power from Payson Hall.

By connecting these buildings directly to the campus's medium voltage distribution system, this will allow for system redundancy, and where necessary, provide standby power via the campus distribution system. In order to connect the four buildings directly to the medium voltage system, approximately 1,200 feet of new conduit within a concrete duct bank and up to 10 electrical manholes would need to be

constructed. Additional investigation would be need to be conducted to examine routing and connection locations associated with this work.

2. ***Replace interior electrical equipment (if necessary):*** Perform replacement of existing interior electrical equipment, if necessary. The utility assessment phase did not include an assessment of the interior electrical equipment; however, C.T. Male has submitted a proposal to perform an Arc Flash Study, which includes assessment of the interior equipment. Due to the age of the equipment, it is assumed that the majority of the equipment (exclusive of Grasse River Suites and the CARC) would need some form of replacement. The specifics related to this work are not known at this time, therefore no costing or discussion of construction phasing relating to this item are provided.
3. ***Manhole de-watering:*** The visual inspection of the electrical manholes determined that approximately 28 electrical manholes on Campus, showed evidence of standing water within them. The manholes were replaced under SUCF Project No. 23124. Based on the as-built construction documents provided by the campus, manhole drainage connections to nearby catch basins and/or outflow via perforated pipes were to be installed as part of the project. The Campus should assess the status of this work, which was required to be performed under Project No. 23124. For this reason, this work is not included in the proposed work scope and cost estimate.

2.5 Site Lighting

The site lighting assessment report identified the following recommended improvements based upon the system evaluation.

1. ***Upgrade to LED fixtures site wide:*** In order to upgrade the existing lighting system to meet SUCF Program Directive 16-6 design guidelines, it is recommended that a photometric study be performed using LED fixtures on an area by area basis, to determine the need for replacing existing fixtures and provide a uniform lighting system that complies with the SUCF directives. Performing this analysis will determine where existing fixtures can be replaced in their current location, and the need for additional fixtures or revised layout and placement of fixtures. Upgrading the lighting system with LED fixtures with greater lumen output, and proper light distribution will allow for increased illumination levels throughout campus.

It is recommended that the roadway lighting be upgraded with new poles and LED “cobrahead” or “shoebox” fixtures, consistent with Campus Standards, as applicable. Architectural “shoebox” style LED area fixtures are recommended to replace existing parking area lighting. Decorative LED “post top” style LED fixtures are recommended for the replacement of existing walkway fixtures. LED type “post tops” are available in numerous configurations, with several options for cage type, base and pole style, finials, and globes. Utilizing steel poles allows for several color choices and options for banner mounting, and matching the newer poles used on the interior of campus. As an alternate to replacing the poles, retrofit compatible style LED fixtures are available for the replacement of only the fixture. Utilizing a retrofit type LED fixture allows the existing fixture to be replaced using simple hand tools and requires no modification to existing poles, or electrical wiring, minimizing site impact. This retrofit could be used in areas where the current layout and fixture spacing is adequate and/or where site impact is a concern.

The Campus should determine a family of lighting styles to use across the Campus, so that a common visual appearance and type of lighting can be obtained.

The highest priority site lighting replacements include along Cornell Drive, in the parking lots, and along pedestrian walkways. Parking lot replacements will include site lighting, and the remainder of the lighting replacements can coincide with other utility replacement projects, sidewalk replacements, or as stand-alone projects.

In order to develop cost estimates for the lighting replacement, it is assumed that replacement of the existing fixtures with LED fixtures, and possible the need for more fixtures to be needed to meet SUCF lighting standards, it was assumed that the number of lights would increase by an average factor of 1.25: 1. It is important to note that the exact number and location of lights should be determined once a complete photometric study of the proposed improvements is prepared, which was not included in the scope of this utility assessment project.

2.6 Natural Gas Distribution System

The natural gas distribution system assessment report identified the following recommendations based upon the condition and capacity assessments:

1. ***Replace entire steel pipe distribution system:*** Due to the age and potential for corrosion and piping failure, the entire distribution system is recommended to be replaced with polyethylene (PE) pipe. The layout of the system will be improved, such that the system will be looped along Cornell Road, with laterals feeding the buildings located off the loop. The recently installed PE lines servicing the CARC and Grasse River Suites will not be replaced.

The size of the new distribution lines will match existing, and the capacity will be significantly increased with installation of more efficient plastic piping. With the proposed looped system, the available capacity will be increased to between 180,000 cfh and 200,000 cfh. This will provide for a significant amount of excess peak hourly volume within the new system.

2. ***Install new gas meters:*** The installation would include all Campus buildings, except for the CARC, Grasse River Suites and Newell Vet Tech buildings, which contain newer gas meters. It is recommended that wireless meters be installed that can be read remotely.
3. ***Construct second supply connection to St. Lawrence Gas system:*** Install approximately 800 feet of 4 inch PE high pressure gas main from the proposed loop east of Grasse River Suites to Bird Street. The second connection would include a metering station.

2.7 Fire Protection System

The fire protection system assessment determined that the buildings on the Campus that were recently constructed or rehabilitated are fully sprinklered, which is consistent with SUCF and Building Code. The remainder of Campus buildings that are non or partially sprinklered are not required to contain systems, but will likely be retrofit if major renovations are planned. If upgrades to or construction of sprinkler systems are necessary, that would be performed as part of the building project, therefore this work is not included in the implementation plan and cost estimate.

A NYS Department of State certified fire inspection contractor should be retained to perform inspection and testing of all fire protection systems on an annual basis. The testing should be performed on an annual basis as part of ongoing building maintenance. For this reason, this work is not included in the proposed work scope and cost estimate.

2.8 Communication System

The communication system assessment report identified the following recommended based upon the condition and capacity assessments:

1. ***Clean, Polish and Re-Terminate Cable Fibers:*** For both the fiber and phone cables, clean fibers and polish where possible. Re-terminate fibers where necessary using an epoxy, heat cure and machine polish technique.
2. Phase out copper phone system and implement VOIP.
3. ***Construct a new conduit and fiber plant.*** Configure system in a SONET Ring, so in the event of a cable disruption, network switches can automatically change the flow of traffic. Replace all fiber plant with non-zero dispersion shifted Singlemode fiber.

2.9 Fuel System

The fuel system assessment report identified the following improvements for upgrades to fuel storage systems and to comply with all applicable codes:

1. ***Replace underground tanks at Cooper Service:*** The existing 6,000 gallon gasoline and 4,000 gallon diesel fuel tanks are nearing their useful life and contain more storage volume than is required by Campus at this time. The two tanks could be replaced with a single aboveground, 6,000 gallon diesel and gasoline tank system with dispensers. The tank could be compartmentalized to jointly store the two different types of fuel, and would be required to include leak detection equipment, overfill containment, secondary containment, emergency venting and a level gauge. The dispensers could also include a fuel management system/car reader, and a canopy could be installed over the dispensers. After the new dispensing system is constructed, the underground tanks would be required to be removed, per NYSDEC criteria.
2. ***Update or amend SPCC Plan:*** SUNY Canton has a SPCC Plan in-place that has been certified by a licensed professional engineer in February 2012. cursory review of the

SPCC Plan has shown incorrect reference to some tank IDs, unlisted tanks that are on-site, and a depiction of one tank/transfer area on associated mapping that does not appear to match existing conditions. It is recommended that SUNY Canton have the plan updated as part of ongoing maintenance on the site.

3. ***Remove biodiesel underground tank at Cooper Service:*** The Campus has indicated that it no longer uses the 500 gallon biodiesel fuel tank at Cooper Service building. The tank should be removed, with closure activities being noticed to NYSDEC.

2.10 Landscaping and Hardscaping

After review of landscaping needs, and coordination with potential utility replacement and repair projects, along with planned FMP initiatives, the priority landscaping recommendations consist of the following:

1. Repair, replace, and redesign, as necessary, the surface treatment for pedestrians and landscaping at parking areas scheduled to be reconstructed. The existing parking areas have partial or incomplete pedestrian pathways running through or adjacent to them. In many cases, the pedestrian linkage is simply defined as the edge of the parking lot drive lane. Often this results in compacted dirt along poorly edged pavement. Landscaping in these areas should be implemented to create more aesthetic pedestrian ways. The landscape areas can also help separate and define the new pathways from the parking lots.
 - Alternate designs of parking areas should incorporate greater spatial efficiency, improve snow removal, and protect landscape edging.
 - New sidewalks should extend from parking areas to have appropriate connections to campus destinations, and shall include or improve handicap accessibility for students, staff, and visitors.
 - Lawn areas disturbed during reconstruction of Lots should be replaced with alternate groundcovers to reduce long-term maintenance.

Note: Figures 3 and 4 identify areas and methods to incorporate and achieve the above goals.

2. Development of a comprehensive design for a north/south pedestrian access from Heritage Hall to the area between Wicks and Dana Halls to Parking Lot 5 should be considered. The area between Wicks and Dana Halls was identified in the 2011 Facilities Master Plan as an area to promote and implement a new exterior gathering

space. A conceptual plan for the Wicks/Dana exterior plaza space is included in Figure 3.

3. Development of a comprehensive design for Lot #1 to incorporate suggested improvements outlined above. Figure 4 of the implementation plan addresses landscaping, lighting, and pedestrian improvements to occur for Parking Lot #1. In addition, this concept plan addresses a proposed open space improvement in the Facilities Master Plan (4D- Provide Safe and Active Open Space for South End of Campus). Figure 4 identifies new, safer sidewalk connections adjacent to Parking Lot #1 and between Miller Drive and Nevaldine Technology Center. The proposed improvements also identify areas of new landscaping.
4. Consider enhancement of landscaping of selected areas at the CARC and Grasse River Suites. Both of these facilities have limited landscaping. The implementation plan identifies areas adjacent to Grasse River Suites for further detailing. It is recommended that Landscaping Plans at the CARC Building be addressed during updated improvements currently being developed.
4. Consider development of a continuous pedestrian access from Grasse River Suites to the CARC, which links with the Chaney Dining Center and residence halls. This access should be protected from vehicular traffic and provide full handicap accessibility. Figure 4, the Lot #1 redevelopment concept plan addresses pedestrian circulation from Cornell Drive along Miller Drive and connecting along the southern side of Lot #1 near Smith Hall.
5. Develop a landscape plan to screen the rear of residence halls and Chaney Dining Hall. This area currently offers what could be considered an unattractive view along a substantial stretch of Cornell Drive. Screening areas are proposed.

2.11 Pavement/Walkways

The pavement assessment report identified the following recommendations based upon the condition assessment for the site asphalt pavement, retaining walls, sidewalks and curbing:

1. ***Replace 6 parking lots with full depth pavement sections:*** Parking Lot 1, 3, 5, 8, 11 and 12. These parking lots are in poor condition and require complete reconstruction. New lighting, landscaping and stormwater management practices are also

recommended. In addition, where required, underdrain, curbing and closed drainage systems will be warranted. Depending on the stormwater treatment specified, sheet drainage along with open treatment type methods may be the preferred design. Individual SWPPP plans will be needed at each parking area and will determine the most practical design approach.

Replacement of the parking lots will disturb more than 1 acre of soil, therefore design of stormwater management practices in accordance with the most recent version of the New York State Department of Environmental Conservation's General Permit for Construction Site Discharges and the New York State Stormwater Management Design Manual are required.

All parking area restoration projects shall address Facilities Master Plan goal of increasing overall parking on campus. ADA Handicap accessibility standards shall be included during pavement replacement plans. Figures 3 and 4 of the implementation plan address the provision of an equal number of parking spaces while including appropriate handicap parking spaces which meet both the number and design standards.

2. ***Replace Site Roadways in Poor Condition:*** Payson Drive from Cornell Drive to Dana Hall, the two site driveways accessing Parking Lot 1, the driveways leading to the loading area on the north side of Dana Hall, and the site driveways leading to the loading areas on the east sides of Smith, Mohawk, Rushton and Heritage Halls are in poor condition and require complete reconstruction. The total area of site roadways requiring full replacement is approximately 66,000 square feet.
3. The asphalt sidewalks located between Mohawk Hall and Chaney Dining Center are in poor condition and require replacement.
4. ***Re-pave Cornell Drive:*** Cornell Drive was determined to contain moderate levels of cracking within the majority of its length, which was determined to be in fair condition. Cornell Drive should be re-paved with at least a single course of pavement. Pedestrian connectivity issues, such as a lack of sidewalks near Grasse River Suites and the CARC can be addressed during the paving project.
5. ***Replace 1,200 feet of concrete curbing and 2,300 sf of concrete sidewalk:*** Replacement of certain curbing sections and concrete sidewalks can be accommodated during repairs of adjacent Parking Lots or during proximal utility replacement.

6. Three retaining walls located on the north side of Wicks Hall, at the northeast corner of Southworth Library, and east of Payson Hall were in poor condition, with veneer becoming detached from the wall structure. Removal and replacement of the veneer is necessary. The retaining wall structures themselves are in satisfactory condition.

3.0 PHASING

This section discusses phasing strategies for the infrastructure upgrades at the SUNY Canton Campus, based upon recommendations summarized in Section 2.0. The prioritization of the projects is based upon system condition, capacity needs, coordination with planned projects described in the 2011 FMP, as well as input from Campus. The recommended improvements are broken down into the following three phases.

- Phase 1: Upgrades recommended for years 2013 to 2017 (Years 1 to 5). These are designated as highest priority.
- Phase 2: Projects scheduled from 2018 to 2022. These repairs are designated as needed, but are not of highest priority.
- Long Term: Projects 10 + years out.

3.1 Phase 1 Improvements

Phase 1 improvements include repairs or replacements to the site utilities and amenities that are designated as priority, or are necessary to accommodate development outlined in the FMP. Phase 1 work would be performed within the next five years from 2013 to 2017. Figure 1, "Phase 1 Improvement Map", shows the location of the proposed improvements. Refer to Appendix B, which contains the preliminary cost estimate, for a more detailed breakdown of the quantities associated with the projects described below.

1. ***Natural Gas Distribution System Replacement:*** Replacement of the natural gas distribution system has been determined to be the highest priority utility replacement campus wide, considering its age and material, and should be replaced early in Phase 1. The replacement involves installation of approximately 11,400 feet of new PVC gas main and laterals in sizes ranging from 1.25 to 4 inches, along with gas meters at the buildings and valves.
2. ***Water Distribution System Replacement:*** Replacement of the water system includes replacement of approximately 2,650 feet of water main and 500 feet of water service lines with new ductile iron pipe, along with replacement of hydrants and gate valves. Also included in the work scope are capacity upgrades to the Nevaldine pump station, installation of water meter pit and installation of a new check valve cluster near Dana Hall.

The need to install code-compliant backflow preventers at 11 of the Campus buildings is also considered priority and is included in the Phase 1 work. The installation of water meters, although not considered highest priority, should be done in conjunction with the backflow preventer installation to complete the interior plumbing work as one project.

3. ***Sanitary Sewer Improvements:*** Improvements to the sanitary sewer system include replacement of the sanitary sewers that are in poor condition, a total of approximately 2,500 feet of new 8, 10 and 12-inch PVC pipe. Included in this work is replacement of 19 sanitary manholes and construction of the sanitary sewer grinder system.
4. ***Storm Sewer Replacement:*** Replacement of the majority of the storm sewers and structures identified as requiring replacement will be performed under Phase 1. Three sections of storm sewer that cross Cornell Drive near Grasse River Suites will be replaced under Phase 2, associated with paving of Cornell Drive. A total of approximately 700 feet of storm sewer will be replaced with new 12, 15, 24 and 36-inch HDPE pipe. Included in this work is replacement of 9 drainage structures.
5. ***Fuel System Replacement at Cooper Service:*** The underground fuel storage tanks at Cooper Service should be replaced with a new above-ground dispensation system under Phase 1 as the tanks are nearing their useful life. Removal of the underground biodiesel tank should be done at the same time as the fuel tank removal.
6. ***Communication System Improvements:*** For the communication system, cleaning, polishing and re-termination of fiber and phone cables should be performed under Phase 1 to ensure continued functionality of the system.
7. ***Lighting Improvements:*** It is recommended that the roadway lighting along Cornell Drive be replaced under Phase 1. This work could include new conduit, bases, poles and LED fixtures of up to 110 lights. As mentioned previously, a conservative factor was applied when estimating the number of LED lights that would need to be in place to meet the SUCF Directive. The cost estimate includes complete replacement of the lights; however, a retrofit of lighting fixtures on existing poles could be considered a lower cost option if the poles and bases are of acceptable condition and style. The lighting project would include little to no impact to the roadway itself, as conduit installation beneath the roadway could be performed using trenchless methods.

8. ***Retaining Wall Improvements:*** Removal and replacement of the veneer on the three retaining walls (at Wicks Hall, Southworth Library and Payson Hall) identified as being in poor condition will be performed under Phase 1. The total area of facade replacement totals approximately 5,750 square feet.
9. ***Pavement Replacement:*** The pavement replacement includes parking lots, site driveways, loading areas and portions of Cornell Drive, and is described below.

The paving assessment determined that 6 parking lots were in poor condition and require full depth replacement. In order to prioritize the work, the Campus determined that three parking lots were in most need of replacement due to condition and frequency of use: Parking Lot 1 near Newell Vet Tech, Parking Lot 5 near Dana Hall and Parking Lot 3. Replacement of Parking Lot 3, however, is not recommended under Phase 1, due to the upcoming renovation of Dana Hall, as identified in the FMP. Parking Lot 3 will likely be used as a construction staging area for the Dana Hall renovation, therefore replacement of Parking Lot 3 should be put off until Phase 2. Replacement of Parking Lots 1 and 5 will be performed under Phase 1. Parking Lot 1 work will include replacement of the two entrance drives east and west of the parking lot. Replacement of all parking lots will include required drainage (catch basins, piping, underdrains, stormwater management, etc), lighting and landscaping work. It is assumed that the parking lot replacements will attempt to maximize the number of parking spaces within the existing limit of pavement. All parking lot lights will be replaced with new conduit, bases, poles and LED fixtures. Landscaping will be incorporated into the parking lot layout, as well as consideration for drainage practices, which will most likely include NYSDEC- mandated “green infrastructure” practices to treat stormwater runoff from the reconstructed parking lots. Figures 3 and 4 show possible locations for stormwater management basins for Parking Lots 1 and 5. Figures 3 and 4 do not include designs of the stormwater practices, and only show that space is available near the parking lots to accommodate stormwater management.

The driveways and loading areas located on the east side of Smith, Mohawk, Rushton and Heritage Halls is considered in poor condition and should receive full depth pavement replacement in Phase 1. At this time, no lighting, landscaping or drainage improvements are proposed to be performed in addition to the pavement replacement.

The pavement along Cornell Drive was determined to contain moderate levels of cracking, which is categorized as being in fair to good condition, and not yet recommended for full replacement. Two sections of Cornell Drive had a somewhat higher frequency of cracking, approximately 600 feet of roadway near Parking Lot 5, and approximately 300 feet of roadway near Cooper Service. It is recommended that these sections of pavement have the top course of pavement milled and replaced during Phase 1 in order to prevent more extensive damage to the pavement that could be more costly to repair if the work was delayed.

10. ***Landscaping/Pedestrian Improvements:*** Installation of landscaping associated with the Parking Lot 1 and 5 replacements shall be performed under Phase 1. Screening of the loading docks at the rear of residence halls and Chaney Dining Hall will also be included. total area of landscaping improvements in Phase 1 is approximately 1.3 acres. Concrete sidewalks associated with Parking Lot 1 are proposed for Phase 1, totaling approximately 2,900 feet.

3.1.1 Potential Project Breakout Strategies

In general, the work recommended to be performed during Phase 1 is campus-wide, with limited areas that could be designated as “corridor” improvements. One breakout corridor project near Dana Hall has been identified, as described in Section 3.1.2. The majority of the recommended improvements can be performed independently, i.e. without impact to other utilities or areas of recommended improvement. Most notably, replacement of the natural gas distribution network can be completed independently without impact to other utilities or roadways. The proposed sanitary sewer replacement and grinder system along the eastern portion of Cornell Drive could also broken out as a project along with the storm sewer and lighting replacements within that area. Similarly, the water main replacement within the upper pressure zone of the Campus could be packaged with the sanitary sewer replacement near French Hall. Otherwise, the remainder of the sanitary sewer and storm sewer replacements are fairly spread out and will likely be bundled as a separate project.

Another such break out project is the reconstruction of Lot 1, which includes full pavement, lighting, and drainage. Additionally, landscaping and new walkways better connecting Grasse River Suites to campus are proposed.

3.1.2 Dana Hall Area Breakout Project

A breakout project consisting of the utility work south of Dana Hall and Parking Lot 5 has been identified. The corridor from Parking Lot 5 east to sanitary manhole 50 near the tennis courts contains numerous utility replacements that require nearly the entire corridor between Wick and Dana Halls to be disturbed. A landscaping and hardscaping improvement plan has been developed for this project area. Figure 3, “Conceptual Layout Plan- Wicks/Dana Hall Exterior Improvements”, shows the location of the proposed improvements.

This creates an opportunity to perform the utility work in this vicinity at the same time, and to perform landscaping and hardscaping improvements within the corridor, consistent with the FMP. The landscaping and hardscaping improvements would add to the proposed interior renovation work at Dana Hall to create a cohesive project.

The Campus has indicated that the Dana Hall Area breakout project should be performed during the beginning of Phase 1.

3.1.3 Parking Lot 1

A landscaping and hardscaping improvement plan has been developed for Parking Lot 1. Figure 4, “Proposed Layout- Parking Lot 1”, shows the location of the proposed improvements.

The layout includes installation of landscaping and sidewalks within the Parking Lot 1 area. This work is proposed to be performed in Phase 1.

3.2 Phase 2 Improvements

Phase 2 improvements include repairs or replacements to the site utilities and amenities that are designated as necessary, but not of highest priority. Phase 2 work would be performed between 2018 and 2022. Figure 2, “Phase 2 Improvement Map”, shows the location of the proposed improvements.

1. ***Pavement Replacement:*** The majority of the Phase 2 work includes pavement replacement. As discussed in Section 3.1, the paving assessment determined that 6 parking lots were in poor condition and require full depth replacement. Parking Lots 1 and 5 were considered by the Campus to have the highest priority for replacement and

are slated to be replaced during Phase 1. Parking Lot 3 will be used as the construction staging area for the upcoming Dana Hall renovation, therefore replacement of Parking Lot 3 should be done under Phase 2. Parking Lots 7, 8 and 12 are recommended to be replaced during Phase 2. Parking Lot 11 is considered in poor condition; however, Parking Lot 11 served the former Campus Police building east of Cooper Service building, and is not longer used. Therefore, replacement of Parking Lot 11 is not proposed. Replacement of Parking Lot 3 will include full depth pavement replacement of Payson Drive to Dana Hall, and the driveways and loading areas at the north side of Dana Hall. Replacement of all parking lots will include required drainage, lighting and landscaping work, as described in Section 3.1.

The walkways between Mohawk Hall and Chaney Dining Center were determined to be in fair to poor condition, and are recommended to be replaced during Phase 2.

The pavement along the entire length of Cornell Drive was determined to contain moderate levels of cracking, which is categorized as being in fair condition, which is not considered high priority for replacement. As discussed in Section 3.1, two sections of Cornell Drive, totaling approximately 900 feet, had more extensive cracking, and would be re-paved under Phase 1. It is recommended that the balance of Cornell Drive have the top course of pavement milled and replaced during Phase 2.

2. ***Natural Gas and Water Main Secondary Connections:*** The water and natural gas reports identified the need to construct second connections to the Village of Canton water system and St. Lawrence Gas Distribution network. These second connections are necessary, but are not considered high priority as the existing connections are acceptable. The connections to Bird Street should be made during Phase 2. The secondary natural gas main will be 4" PE pipe, approximately 900 feet in length, while the secondary water main will be 10" DIP, approximately 850 feet in length.
3. ***Sanitary Sewer Lining:*** Televising of the 12" CIP sewer line beneath the Grasse River determined that despite the sewer's age, the pipe was in fair condition. Given the fact that this is the single sewer line servicing the Campus, the sewer, which is approximately 520 feet in length, should be lined during Phase 2.
4. ***Storm Sewer Replacement:*** The three storm sewers crossing Cornell Drive near Grasse River Suites that are recommended to be replaced should be replaced under Phase 2,

during re-paving of Cornell Drive. The replacements will include 24 and 36-inch HDPE pipe, totaling approximately 700 feet in length.

5. ***Electrical Services Upgrade:*** Direct connection of Wicks Hall, French Hall, Cooper Service and Cook Hall to the medium voltage electrical distribution system should be constructed under Phase 2. The Campus has indicated that this work should be performed; however, it is not considered priority. The estimated scope of the system includes approximately 1,200 feet of new conduit and duct bank and 10 electrical manholes.
6. ***Pedestrian Improvements/Site Lighting/Landscaping:*** New concrete sidewalks (approximately 2,900 feet total) located west of the Nevaldine buildings, west of Chaney Dining Center and from Dana Hall to the CARC are proposed under Phase 2. Included in this work will be replacement of any site lighting (approximately 30) adjacent to these walkways. Landscaping improvements in the front of Grasse River Suites are proposed under Phase 2, totaling approximately 1 acre.

3.3 Long Term Improvements

The utility assessment report identified the following projects that would be considered longer term, occurring from year 2023 and beyond.

1. ***Communication System Improvements.*** This work would include phasing out the copper phone cable system with VOIP, and installation of a new communication system SONET ring loop. The current function of the communication system is acceptable, and the need to perform these upgrades is not needed within the next 10 years.
2. ***Water Main Improvements.*** The 45+ year old water mains located within the lower pressure zone of the Campus, were considered to be in fair condition based upon hydrant tests. Additional testing should be performed in the future to determine the condition, and possible replacement of the remainder of the original water lines due to age.
3. ***Lighting.*** Lighting replacement has been proposed along Cornell Drive for Phase 1, and in both Phases 1 and 2 associated with parking lot reconstruction and construction of new sidewalks. The Campus has not indicated the need to perform specific lighting projects in addition to the replacements noted in Phases 1 and 2.

Replacement of the balance of Campus lights (approximately 175) should be completed in the future as budget allows.

4.0 COST ESTIMATE

The cost estimate prepared for the Implementation Plan is preliminary in nature. The cost estimate was prepared by Toscano, Clements, Taylor as a subconsultant to C.T. Male. A copy of the complete cost estimate can be found in Appendix B.

The estimate included itemized estimates for Phase 1, the Dana Hall breakout project, Phase 2 and Phase 3.

The following conditions and contingencies are included in the estimates:

- 10% General Conditions
- 10% Overhead and Profit
- 15% Design Contingency
- 5% Construction Contingency

The escalation factor used for this project is 3.5% annually. Phases 1 and 2 have a 5 year duration, and the escalation factor was applied to the mid-point of each phase. For Phase 3, the escalation was applied 15 years into the future.

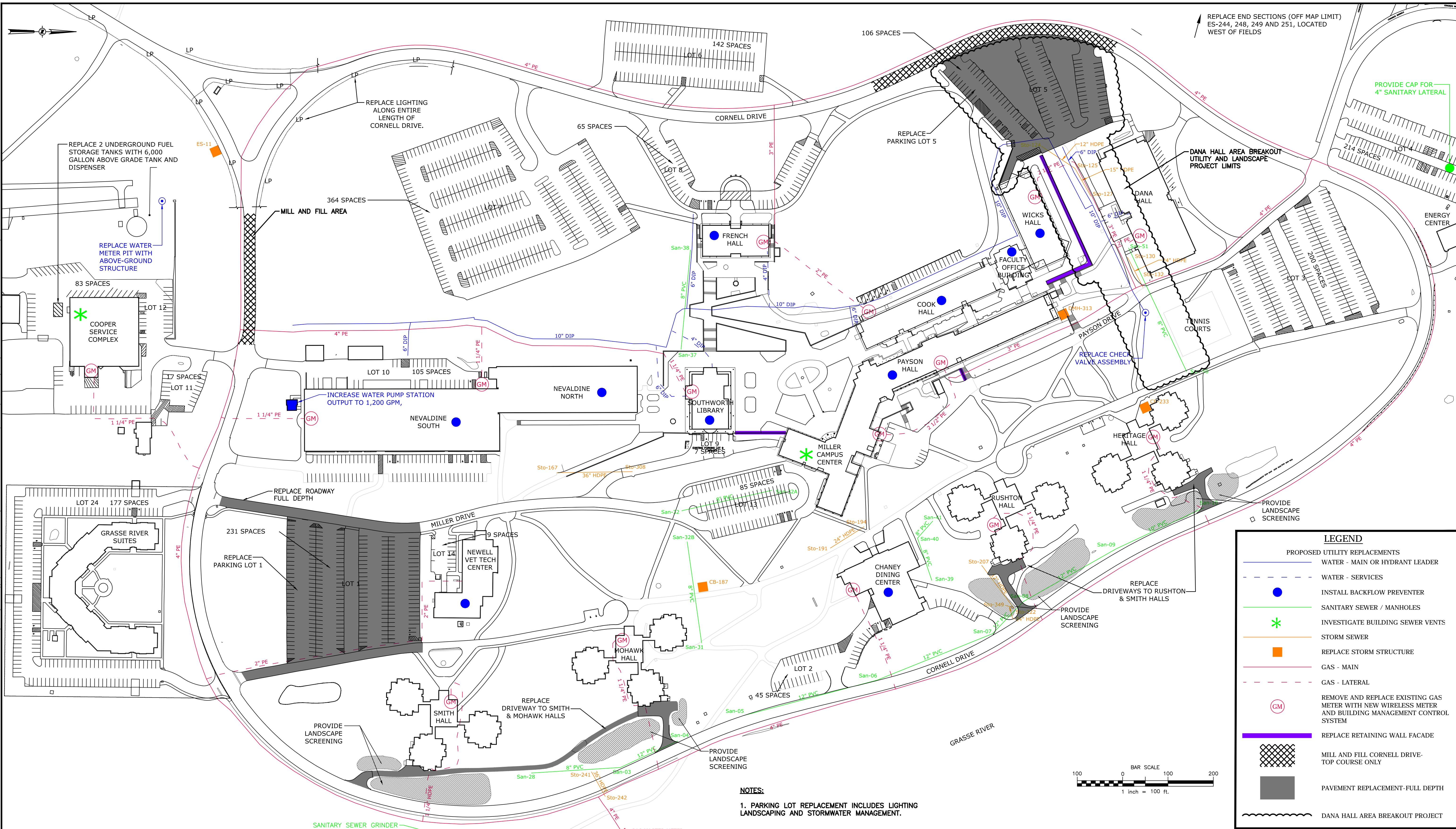
Preliminary Cost Estimates at the mid-point of each phase (with contingencies and escalation) for Phase 1, 2 and 3 (Long Term) are as follows:

- Phase 1: \$13.14 million
- Phase 2: \$12.77 million
- Long Term: \$12.31 million

FIGURES

FIGURE 1

Phase 1 Improvement Map



LEGEND

PROPOSED UTILITY REPLACEMENTS

—

WATER - MAIN OR HYDRANT LEADER

- - -

WATER - SERVICES

●

INSTALL BACKFLOW PREVENTER

—

SANITARY SEWER / MANHOLES

*

INVESTIGATE BUILDING SEWER VENTS

—

STORM SEWER

■

REPLACE STORM STRUCTURE

—

GAS - MAIN

- - -

GAS - LATERAL

GM

REMOVE AND REPLACE EXISTING GAS METER WITH NEW WIRELESS METER AND BUILDING MANAGEMENT CONTROL SYSTEM

—

REPLACE RETAINING WALL FACADE

▨

MILL AND FILL CORNELL DRIVE- TOP COURSE ONLY

■

PAVEMENT REPLACEMENT-FULL DEPTH

~~~~~

DANA HALL AREA BREAKOUT PROJECT

NOTES:

1. PARKING LOT REPLACEMENT INCLUDES LIGHTING LANDSCAPING AND STORMWATER MANAGEMENT.

ADDITIONAL PHASE 1 WORK NOT SHOWN ON PLAN:

1. CORNELL DRIVE LIGHTING REPLACEMENT, ENTIRE LENGTH. REPLACE WITH LED FIXTURES.

2. INSTALL WATER METERS IN ALL CAMPUS BUILDINGS, EXCEPT GRASSE RIVER SUITES.

3. DANA HALL AREA LANDSCAPE IMPROVEMENTS AND PARKING LOT 1 IMPROVEMENTS (SEE FIGURES 3 AND 4).

4. FIBER OPTIC SYSTEM BUILDING ENTRANCE IMPROVEMENTS.

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|      | 3         |                    |         |       |       | DRAFTED : GJM                                                                                            |
|      | 4         |                    |         |       |       | CHECKED : JRE                                                                                            |
|      | 5         |                    |         |       |       | PROJ. NO: 12.2077                                                                                        |
|      | 6         |                    |         |       |       | SCALE : AS SHOWN                                                                                         |
|      | 7         |                    |         |       |       | DATE : MAY 2013                                                                                          |

PROPOSED IMPLEMENTATION PLAN  
PHASE 1

SUNY CANTON

CAMPUS WIDE SITE UTILITIES STUDY SUCF PROJECT NO. 23206

VILLAGE OF CANTON

SAINT LAWRENCE COUNTY, NEW YORK

C.T. MALE ASSOCIATES

Engineering, Surveying, Architecture & Landscape Architecture, P.C.

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FIG 1

SHEET 1 OF 4

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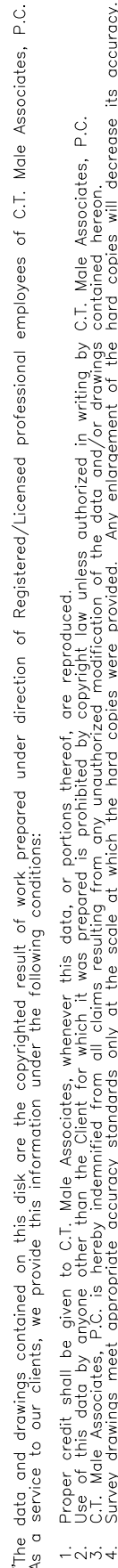
CAD DWG. FILE NAME: Misc\_02\_Proposed Implementation Plan\_Phase 1.dwg

CAD DWG. FILE NAME: Misc\_02\_Proposed



## **FIGURE 2**

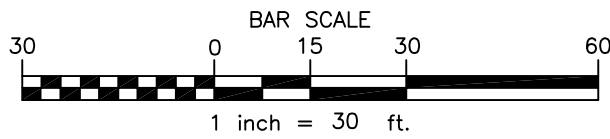
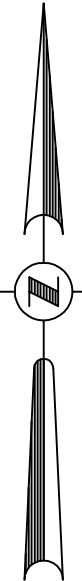
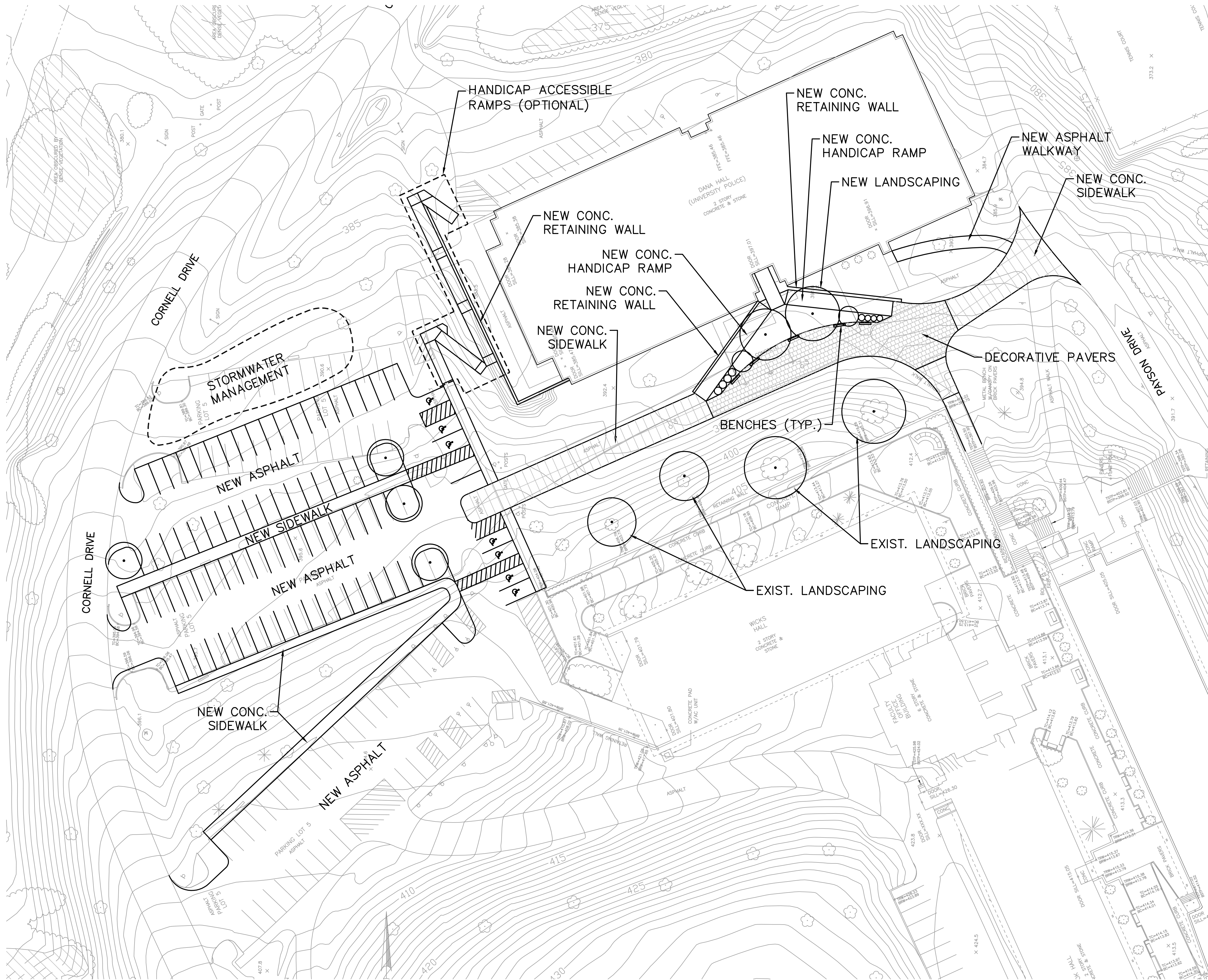
### Phase 2 Improvement Map



## **FIGURE 3**

Conceptual Layout Plan - Wicks/Dana Hall  
Exterior Improvements





**1 CONCEPTUAL LAYOUT PLAN**  
SCALE: 1" = 30'  
CROSS REFERENCE: NONE

**NOT FOR CONSTRUCTION**

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|      | 5         |                    |         |       |       | PROJ. NO: 12                                                                                             |
|      | 6         |                    |         |       |       | SCALE : 1"=30'                                                                                           |
|      | 7         |                    |         |       |       | DATE :                                                                                                   |

**CONCEPT PLAN**  
**WICKS/DANA COURTYARD AND PARKING LOT 5**

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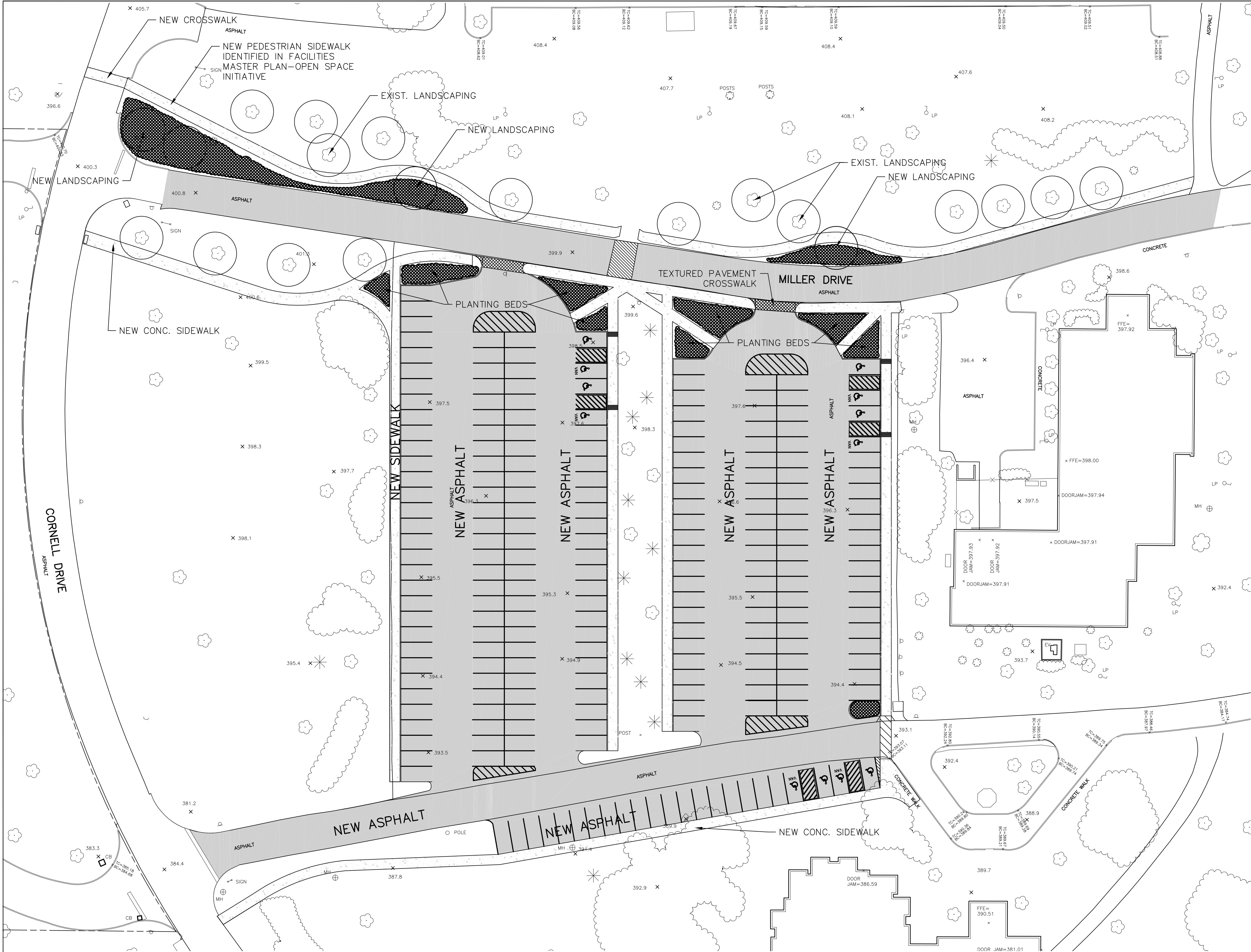
**FIG 3**

SHEET \_ OF \_  
DWG. NO:12

## **FIGURE 4**

Proposed Layout – Parking Lot 1





"ONLY COPIES OF THIS MAP SIGNED IN RED INK AND EMBOSSED WITH THE SEAL OF AN OFFICER OF C.T. MALE ASSOCIATES OR A DESIGNATED REPRESENTATIVE SHALL BE CONSIDERED TO BE A VALID TRUE COPY"

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|      | 6         |                    |         |       |       | SCALE : 1"=30'                                                                                           |
|      | 7         |                    |         |       |       | DATE : DEC. 2012                                                                                         |

**PROPOSED LAYOUT FOR PARKING LOT 1**

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**FIG4**  
SHEET \_ OF \_  
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## **APPENDICES**

# **APPENDIX A**

## Sanitary Grinder Specifications

# TASKMASTER<sup>®</sup> TM1600

*Heavy-Duty Twin-Shaft Shredder for Gravity or Pressure Systems*

The TASKMASTER TM1600 powerful twin-shaft shredder plows through a large volume of rags, sludge, solid waste, institutional waste, screenings and more.

The TASKMASTER TM1600 has proven its heavy-duty capabilities and valuable service in hundreds of installations worldwide. This heavy-duty shredder employs up to a 20 HP motor and drive to reduce a wide variety of tough solids. It can finely shred heavy screenings, correctional institution sanitary waste, rejects and returns, garments, filters, bottles, containers, plastics, turnings, wood, packaging, paper, electronic components, concession waste, newspapers and more.

*Heavy Duty Construction*

*Heavy Solids Capability*

*Rugged 2-3/4" Hex Shafting*

*Proven, Reliable Mechanical Seals*

*Channel, Gravity or Pipe Systems*



*TASKMASTER TM1600 with a hopper and stand for gravity feed.*

## Features

The TASKMASTER TM1600 features a liquid tight body housing, 2-3/4" hardened hex shafting, mechanical seals, direct inline or optional right-angle gear drive, a choice of cutters, optional cleaning combs, flanges, stand and hopper. Units are also available in stainless steel. A Model S260 Automatic Reversing Controller is supplied standard.

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Miller<sup>®</sup>**  
SEE THE  
DIFFERENCE

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TASKMASTER 1600 - TWIN-SHAFT SHREDDER



## Unique Versatility

The TASKMASTER TM1600 series design provides unique versatility. This unit can operate in liquid channels, gravity systems such as screenings discharged from a bar screen, inline in pressure rated pipe systems or dry systems with stand and hopper for a variety of solid waste shredding applications.

## S260 Control System

An S260 Control System monitors unit operation and automatically cycles the grinder in case of an overload condition. This U.L. listed industrial control panel is supplied complete with circuit breaker, a NEMA 4X FRP enclosure, self-test function, and 100,000 hour life LED indicators.



TASKMASTER TM1630 with optional right angle gear drive.

BELOW: An Inline Taskmaster TM1630-18 being fed by an 18" force main.

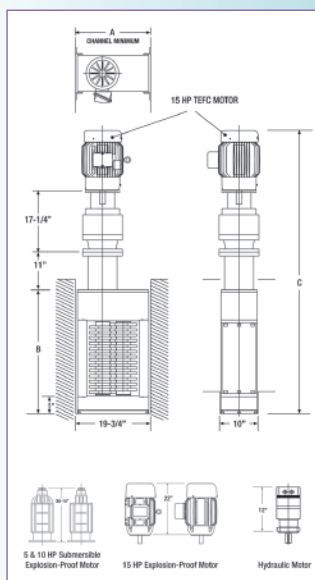


Twin shaft cutting chamber.

## Configurations

The TASKMASTER TM1600 is designed for ease of use and versatility. These units can be installed in straight thru channels,

wet wells or water inlets. They can be installed for full or occasional submergence. Units can be supplied with standard bolt down sole plate, support frames, or channel frames. Guide rails can also be supplied to facilitate removal from wet wells. A variety of drive configurations is available to meet most installation requirements including: standard electric motors, dry-running, submersible explosion proof motors, extended shafts, or hydraulic systems.



| MODEL#  | HP | A               | B                 | C                  | CAPACITY               |
|---------|----|-----------------|-------------------|--------------------|------------------------|
| TM1620A | 10 | 20.5<br>(520mm) | 33.75<br>(857mm)  | 78.25<br>(1988mm)  | 900 (GPM)<br>(57L/S)   |
| TM1620A | 15 | 20.5<br>(520mm) | 33.75<br>(857mm)  | 78.25<br>(1988mm)  | 900 (GPM)<br>(57L/S)   |
| TM1630A | 10 | 20.5<br>(520mm) | 43.75<br>(1111mm) | 88.25<br>(2242mm)  | 1900 (GPM)<br>(120L/S) |
| TM1630A | 15 | 20.5<br>(520mm) | 43.75<br>(1111mm) | 88.25<br>(2242mm)  | 1900 (GPM)<br>(120L/S) |
| TM1640A | 10 | 20.5<br>(520mm) | 53.75<br>(1365mm) | 98.25<br>(2496mm)  | 2900 (GPM)<br>(185L/S) |
| TM1640A | 15 | 20.5<br>(520mm) | 53.75<br>(1365mm) | 98.25<br>(2496mm)  | 2900 (GPM)<br>(185L/S) |
| TM1650A | 10 | 20.5<br>(520mm) | 63.75<br>(1619mm) | 108.25<br>(2750mm) | 3900 (GPM)<br>(250L/S) |
| TM1650A | 15 | 20.5<br>(520mm) | 63.75<br>(1619mm) | 208.25<br>(2750mm) | 3900 (GPM)<br>(250L/S) |

\*Dimensions include flange adapters (not shown).

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PR-TM1602

## **APPENDIX B**

Preliminary Cost Estimate by Toscano,  
Clements, Taylor



**TOSCANO CLEMENTS TAYLOR  
COST CONSULTANTS  
16 Oakwood Rd Huntington NY 11743**

In conjunction with:

**C.T. Male Associates**  
50 Century Hill Drive, Latham, NY 12110

**BUDGET LEVEL ESTIMATE**

**SUNY CANTON  
CAMPUS WIDE UTILITIES SERVICE UPGRADES  
Canton, NY**

Prepared for:  
**State University Construction Fund (SUCF)  
SUCF PROJECT NO. 23206**

**05/13/2013**

## PROJECT QUALIFICATIONS

**05/13/2013**

[illegible]

**SUNY CANTON  
CAMPUS WIDE UTILITIES SERVICE UPGRADES  
Canton, NY**

### Escalation Assumptions

05/13/2013

[illegible]

| PHASE 1 |               |              | PHASE 2       |              |
|---------|---------------|--------------|---------------|--------------|
|         | 3.50%         | Year 1       | 3.50%         | Year 1       |
|         | 3.50%         | Year 2       | 3.50%         | Year 2       |
|         | 3.50%         | Year 3       | 3.50%         | Year 3       |
|         | 3.50%         | Year 4       | 3.50%         | Year 4       |
|         |               | Year 5       | 3.50%         | Year 5       |
|         |               | Year 6       | 3.50%         | Year 6       |
|         |               | Year 7       | 3.50%         | Year 7       |
|         |               | Year 8       | 3.50%         | Year 8       |
|         |               | Year 9       | 3.50%         | Year 9       |
|         | <b>14.00%</b> | <b>TOTAL</b> | <b>31.50%</b> | <b>TOTAL</b> |

**SUNY CANTON**  
**CAMPUS WIDE UTILITIES SERVICE UPGRADES**  
**PROJECT SUMMARY**

|                           |                                                  |                                                                                                                                |                      |                           |  |
|---------------------------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------|--|
| <b>PHASE:</b>             |                                                  | <b>BUDGET LEVEL ESTIMATE</b>                                                                                                   |                      | <b>PROJECT AREA (SF),</b> |  |
|                           |                                                  |                                                                                                                                |                      | Total Area in SF          |  |
|                           |                                                  | <input type="checkbox"/> New Construction <input type="checkbox"/> Addition <input checked="" type="checkbox"/> Rehabilitation |                      |                           |  |
| <b>PROJECT TYPE :</b>     |                                                  |                                                                                                                                |                      | Added Area                |  |
|                           |                                                  |                                                                                                                                |                      |                           |  |
|                           |                                                  |                                                                                                                                |                      |                           |  |
| <b>REGION :</b>           | Canton, NY                                       |                                                                                                                                |                      |                           |  |
| <b>DISTRICT:</b>          |                                                  |                                                                                                                                |                      |                           |  |
| <b>SCHOOL :</b>           | SUNY CANTON                                      |                                                                                                                                | Cost in \$\$         |                           |  |
| <b>A / E :</b>            | C.T MALE ASSOCIATES                              |                                                                                                                                | Cost in \$\$/SF      |                           |  |
| <b>NUMBER</b>             | <b>DESCRIPTION</b>                               |                                                                                                                                | <b>AMOUNT</b>        |                           |  |
| 01                        | Phase 1 projects Occur in Years 1-5 (2013-2017)  |                                                                                                                                | \$ 13,136,579        |                           |  |
| 02                        | Phase 2 projects Occur in Years 6-10 (2018-2023) |                                                                                                                                | \$ 12,767,337        |                           |  |
| 03                        | Long Term projects 10+ Years                     |                                                                                                                                | \$ 12,309,009        |                           |  |
|                           |                                                  |                                                                                                                                |                      |                           |  |
|                           |                                                  |                                                                                                                                |                      |                           |  |
|                           |                                                  |                                                                                                                                |                      |                           |  |
|                           |                                                  |                                                                                                                                |                      |                           |  |
|                           |                                                  |                                                                                                                                |                      |                           |  |
|                           |                                                  |                                                                                                                                |                      |                           |  |
|                           |                                                  |                                                                                                                                |                      |                           |  |
|                           |                                                  |                                                                                                                                |                      |                           |  |
|                           |                                                  |                                                                                                                                |                      |                           |  |
|                           |                                                  |                                                                                                                                |                      |                           |  |
|                           | GENERAL CONDITIONS : 10.0%                       |                                                                                                                                | SEE PHASED BREAKDOWN |                           |  |
|                           | OVERHEAD & PROFIT : 10.0%                        |                                                                                                                                | SEE PHASED BREAKDOWN |                           |  |
|                           | DESIGN CONTINGENCY : 15.0%                       |                                                                                                                                | SEE PHASED BREAKDOWN |                           |  |
|                           | CONSTRUCTION CONTINGENCY : 5.0%                  |                                                                                                                                | SEE PHASED BREAKDOWN |                           |  |
|                           |                                                  |                                                                                                                                |                      |                           |  |
| <b>TOTAL PROJECT COST</b> |                                                  |                                                                                                                                | <b>\$ 38,212,924</b> |                           |  |

**TOSCANO CLEMENTS TAYLOR**  
**SUNY CANTON**  
**CAMPUS WIDE UTILITIES SERVICE UPGRADES**

05/13/2013

|                                                                                                                           |                                                            |                           |              |
|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|---------------------------|--------------|
| <b>PHASE: BUDGET LEVEL ESTIMATE</b>                                                                                       |                                                            | <b>PROJECT AREA (SF),</b> |              |
| <input type="checkbox"/> New Constructi <input type="checkbox"/> Addition <input checked="" type="checkbox"/> Rehabilitat |                                                            | Total Area in SF          |              |
|                                                                                                                           |                                                            |                           |              |
| <b>PROJECT TYPE :</b>                                                                                                     |                                                            | Added Area                |              |
|                                                                                                                           |                                                            |                           |              |
|                                                                                                                           |                                                            |                           |              |
| <b>REGION :</b>                                                                                                           | Canton, NY                                                 |                           |              |
| <b>DISTRICT:</b>                                                                                                          |                                                            |                           |              |
| <b>SCHOOL :</b>                                                                                                           | SUNY CANTON                                                | <b>Cost in \$\$</b>       |              |
| <b>A / E :</b>                                                                                                            | C.T MALE ASSOCIATES                                        | <b>Cost in \$\$/SF</b>    |              |
|                                                                                                                           |                                                            |                           |              |
| <b>Phase 1 projects Occur in Years 1-5 (2013-2017)</b>                                                                    |                                                            |                           |              |
|                                                                                                                           |                                                            |                           |              |
| <b>NUMBER</b>                                                                                                             | <b>DESCRIPTION</b>                                         | <b>AMOUNT</b>             | <b>Notes</b> |
| 01                                                                                                                        | <b>PHASE 1</b>                                             | \$ 6,273,197              |              |
| 02                                                                                                                        | <b>DANA HALL UTILITY &amp; LANDSCAPE</b>                   | \$ 1,786,696              |              |
|                                                                                                                           |                                                            |                           |              |
|                                                                                                                           |                                                            |                           |              |
|                                                                                                                           | SUB TOTAL                                                  | \$ 8,059,894              |              |
|                                                                                                                           | GENERAL CONDITIONS : 10.0%                                 | \$ 805,989                |              |
|                                                                                                                           | SUB TOTAL                                                  | \$ 8,865,883              |              |
|                                                                                                                           | OVERHEAD & PROFIT : 10.0%                                  | \$ 886,588                |              |
|                                                                                                                           | SUB TOTAL                                                  | \$ 9,752,471              |              |
|                                                                                                                           | DESIGN CONTINGENCY : 15.0%                                 | \$ 1,462,871              |              |
|                                                                                                                           | CONSTRUCTION CONTINGENCY : 5.0%                            | \$ 487,624                |              |
|                                                                                                                           | SUB TOTAL                                                  | \$ 11,702,965             |              |
|                                                                                                                           | <b>ESCALATION ;</b><br>to Mid Point of Construction 12.25% | \$ 1,433,613              |              |
|                                                                                                                           | <b>TOTAL PHASE COST</b>                                    | <b>\$ 13,136,579</b>      |              |

**TOSCANO CLEMENTS TAYLOR**  
**SUNY CANTON**  
**CAMPUS WIDE UTILITIES SERVICE UPGRADES**

05/13/2013

|                                                                                                                           |                                                            |                           |              |
|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|---------------------------|--------------|
| <b>PHASE:</b> <b>BUDGET LEVEL ESTIMATE</b>                                                                                |                                                            | <b>PROJECT AREA (SF),</b> |              |
| <input type="checkbox"/> New Constructi <input type="checkbox"/> Addition <input checked="" type="checkbox"/> Rehabilitat |                                                            | Total Area in SF          |              |
|                                                                                                                           |                                                            |                           |              |
| <b>PROJECT TYPE :</b>                                                                                                     |                                                            | Added Area                |              |
|                                                                                                                           |                                                            |                           |              |
|                                                                                                                           |                                                            |                           |              |
| <b>REGION :</b>                                                                                                           | Canton, NY                                                 |                           |              |
| <b>DISTRICT:</b>                                                                                                          |                                                            |                           |              |
| <b>SCHOOL :</b>                                                                                                           | <b>SUNY CANTON</b>                                         | <b>Cost in \$\$</b>       |              |
| <b>A / E :</b>                                                                                                            | C.T MALE ASSOCIATES                                        | <b>Cost in \$\$/SF</b>    |              |
| <b>Phase 2 projects Occur in Years 6-10 (2018-2023)</b>                                                                   |                                                            |                           |              |
|                                                                                                                           |                                                            |                           |              |
| <b>NUMBER</b>                                                                                                             | <b>DESCRIPTION</b>                                         | <b>AMOUNT</b>             | <b>Notes</b> |
| 01                                                                                                                        | <b>PHASE 2</b>                                             | \$ 6,776,826              |              |
|                                                                                                                           |                                                            |                           |              |
|                                                                                                                           | SUB TOTAL                                                  | <b>\$ 6,776,826</b>       |              |
|                                                                                                                           | GENERAL CONDITIONS : 10.0%                                 | \$ 677,683                |              |
|                                                                                                                           | SUB TOTAL                                                  | \$ 7,454,509              |              |
|                                                                                                                           | OVERHEAD & PROFIT : 10.0%                                  | \$ 745,451                |              |
|                                                                                                                           | SUB TOTAL                                                  | \$ 8,199,959              |              |
|                                                                                                                           | DESIGN CONTINGENCY : 15.0%                                 | \$ 1,229,994              |              |
|                                                                                                                           | CONSTRUCTION CONTINGENCY : 5.0%                            | \$ 409,998                |              |
|                                                                                                                           | SUB TOTAL                                                  | \$ 9,839,951              |              |
|                                                                                                                           | <b>ESCALATION ;</b><br>to Mid Point of Construction 29.75% | \$ 2,927,386              |              |
|                                                                                                                           | <b>TOTAL PHASE COST</b>                                    | <b>\$ 12,767,337</b>      |              |

**TOSCANO CLEMENTS TAYLOR**  
**SUNY CANTON**  
**CAMPUS WIDE UTILITIES SERVICE UPGRADES**

05/13/2013

|                                                                                                                           |                                                           |                           |              |
|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|---------------------------|--------------|
| <b>PHASE:</b> <b>BUDGET LEVEL ESTIMATE</b>                                                                                |                                                           | <b>PROJECT AREA (SF),</b> |              |
| <input type="checkbox"/> New Constructi <input type="checkbox"/> Addition <input checked="" type="checkbox"/> Rehabilitat |                                                           | Total Area in SF          |              |
|                                                                                                                           |                                                           |                           |              |
| <b>PROJECT TYPE :</b>                                                                                                     |                                                           | Added Area                |              |
|                                                                                                                           |                                                           |                           |              |
|                                                                                                                           |                                                           |                           |              |
| <b>REGION :</b>                                                                                                           | Canton, NY                                                |                           |              |
| <b>DISTRICT:</b>                                                                                                          |                                                           |                           |              |
| <b>SCHOOL :</b>                                                                                                           | <b>SUNY CANTON</b>                                        | <b>Cost in \$\$</b>       |              |
| <b>A / E :</b>                                                                                                            | C.T MALE ASSOCIATES                                       | <b>Cost in \$\$/SF</b>    |              |
| <b>Long Term projects 10+ Years</b>                                                                                       |                                                           |                           |              |
|                                                                                                                           |                                                           |                           |              |
| <b>NUMBER</b>                                                                                                             | <b>DESCRIPTION</b>                                        | <b>AMOUNT</b>             | <b>Notes</b> |
| 01                                                                                                                        | <b>PHASE 3</b>                                            | \$ 5,495,805              |              |
|                                                                                                                           |                                                           |                           |              |
|                                                                                                                           | SUB TOTAL                                                 | <b>\$ 5,495,805</b>       |              |
|                                                                                                                           | GENERAL CONDITIONS : 10.0%                                | \$ 549,580                |              |
|                                                                                                                           | SUB TOTAL                                                 | \$ 6,045,385              |              |
|                                                                                                                           | OVERHEAD & PROFIT : 10.0%                                 | \$ 604,539                |              |
|                                                                                                                           | SUB TOTAL                                                 | \$ 6,649,924              |              |
|                                                                                                                           | DESIGN CONTINGENCY : 15.0%                                | \$ 997,489                |              |
|                                                                                                                           | CONSTRUCTION CONTINGENCY : 5.0%                           | \$ 332,496                |              |
|                                                                                                                           | SUB TOTAL                                                 | \$ 7,979,908              |              |
|                                                                                                                           | <b>ESCALATION ;</b><br>to Mid Point of Construction 54.3% | \$ 4,329,100              |              |
|                                                                                                                           | <b>TOTAL PHASE COST</b>                                   | <b>\$ 12,309,009</b>      |              |

**Detailed Estimate**  
**PHASE 1 (Years 1-5)**

| SITE WORK |                                                                 |          |      |              |                     |
|-----------|-----------------------------------------------------------------|----------|------|--------------|---------------------|
|           | ITEM                                                            | QUANTITY | UNIT | UNIT PRICE   | AMOUNT              |
|           | <b>Natural Gas Main</b>                                         |          |      |              | <b>\$ 1,523,412</b> |
| 01        | Excavation/Backfill ((10939 x 2 x3)/27)*2                       | 4,862    | CY   | \$ 50.00     | \$ 243,089          |
| 02        | Remove and replace 4" PVC gas main                              | 8,965    | LF   | \$ 75.00     | \$ 672,375          |
| 03        | Remove and replace 3" PVC gas main                              | 777      | LF   | \$ 64.50     | \$ 50,117           |
| 04        | Remove and replace 2 1/2" PVC gas main                          | 250      | LF   | \$ 64.50     | \$ 16,125           |
| 05        | Remove and replace 2" PVC gas main                              | 947      | LF   | \$ 64.50     | \$ 61,082           |
| 06        | Replace gas valves                                              | 90       | EA   | \$ 4,681.32  | \$ 421,319          |
| 07        | Replace gas meters                                              | 13       | EA   | \$ 2,458.40  | \$ 31,959           |
| 08        | Surface restoration (5 x 10939)                                 | 54,695   | SF   | \$ 0.50      | \$ 27,348           |
|           | <b>Water Main / Sprinkler</b>                                   |          |      |              | <b>\$ 678,517</b>   |
| 01        | Excavation/Backfill ((2358 x 4 x4)/27)*2                        | 2,795    | CY   | \$ 50.00     | \$ 139,733          |
| 02        | Install new fire pump to increase output by 600pgm              | 2        | EA   | \$ 55,526.60 | \$ 111,053          |
| 03        | Remove and replace 4" DIP water services                        | 246      | FT   | \$ 50.33     | \$ 12,381           |
| 04        | Remove and replace 6" DIP water main                            | 271      | FT   | \$ 52.33     | \$ 14,181           |
| 05        | Remove and replace 10" DIP water main                           | 1,841    | LF   | \$ 56.33     | \$ 103,707          |
| 06        | Install RPZ backflow preventers On domestic line                | 4        | EA   | \$ 8,549.78  | \$ 34,199           |
| 07        | Install double check valve on domestic line                     | 6        | EA   | \$ 2,187.60  | \$ 13,126           |
| 08        | Install double check valve on fire protection line              | 1        | EA   | \$ 9,057.76  | \$ 9,058            |
| 09        | Remove and replace hydrants                                     | 6        | EA   | \$ 5,000.00  | \$ 30,000           |
| 10        | Remove and replace valves                                       | 15       | EA   | \$ 1,406.52  | \$ 21,098           |
| 11        | Install water meters at all campus buildings (except GR Suites) | 19       | EA   | \$ 1,500.00  | \$ 28,500           |
| 12        | Replace water meter pit with at grade structure                 | 1        | EA   | \$ 20,000.00 | \$ 20,000           |
| 13        | Surface restoration (10 x 2358)                                 | 23,580   | SF   | \$ 6.00      | \$ 141,480          |
|           | <b>Sanitary Sewer</b>                                           |          |      |              | <b>\$ 655,437</b>   |
| 01        | Excavation/Backfill {( 2260 x 4 x4)/27}*2                       | 2,679    | CY   | \$ 50.00     | \$ 133,926          |
| 02        | Remove and replace 8" PVC sanitary sewer                        | 994      | LF   | \$ 111.97    | \$ 111,297          |
| 03        | Remove and replace 10" sanitary sewer                           | 215      | LF   | \$ 123.87    | \$ 26,632           |
| 04        | Remove and replace 12" sanitary sewer                           | 1,051    | LF   | \$ 133.57    | \$ 140,382          |
| 05        | Replace sanitary manholes                                       | 18       | EA   | \$ 10,000.00 | \$ 180,000          |
| 06        | Install sanitary grinder w/electric                             | 1        | EA   | \$ 18,000.00 | \$ 18,000           |
| 07        | Surface restoration (10 x 2260)                                 | 22,600   | SF   | \$ 2.00      | \$ 45,200           |
|           | <b>Storm Sewer</b>                                              |          |      |              | <b>\$ 181,763</b>   |
| 01        | Excavation/Backfill {( 454 x 4 x4)/27}*2                        | 538      | CY   | \$ 50.00     | \$ 26,904           |
| 02        | Remove and replace 12" HDPE storm sewer                         | 118      | LF   | \$ 42.00     | \$ 4,956            |
| 03        | Remove and replace 24" HDPE storm sewer                         | 107      | LF   | \$ 68.00     | \$ 7,276            |
| 04        | Remove and replace 36" HDPE storm sewer                         | 229      | LF   | \$ 103.22    | \$ 23,637           |
| 05        | Install new catch basin                                         | 2        | EA   | \$ 5,500.00  | \$ 11,000           |
| 06        | Install new drainage manholes                                   | 2        | EA   | \$ 8,500.00  | \$ 17,000           |
| 07        | Install new end sections + rip rap                              | 5        | EA   | \$ 5,050.00  | \$ 25,250           |
| 08        | Clean, flush and televise storm sewer                           | 22,000   | LF   | \$ 1.75      | \$ 38,500           |
| 09        | Surface restoration (10 x 454)                                  | 4,540    | SF   | \$ 6.00      | \$ 27,240           |
|           | <b>Fuel Storage</b>                                             |          |      |              | <b>\$ 135,532</b>   |



## Detailed Estimate

### PHASE 1 (Years 1-5)

| SITE WORK |                                                                                                            |                  |      |               |                        |
|-----------|------------------------------------------------------------------------------------------------------------|------------------|------|---------------|------------------------|
| 01        | Remove existing underground 4000 gallon Fuel Tank                                                          | 1                | EA   | \$ 5,000.00   | \$ 5,000               |
| 02        | Remove existing underground 6000 gallon Fuel Tank                                                          | 1                | EA   | \$ 6,000.00   | \$ 6,000               |
| 03        | Install new aboveground 6,000gal fuel tank system w/ fuel management system                                | 1                | EA   | \$ 109,532.00 | \$ 109,532             |
| 04        | Concrete pad 12' x12' x 1'                                                                                 | 5                | CY   | \$ 750.00     | \$ 4,000               |
| 05        | Concrete fill bollards                                                                                     | 20               | EA   | \$ 550.00     | \$ 11,000              |
|           | <b>Electrical /CommunicationServices &amp; Site Lighting</b>                                               |                  |      |               | <b>\$ 946,088</b>      |
| 01        | Cornell drive light replacement (site light along Cornell drive)                                           | 110              | EA   | \$ 4,321.25   | \$ 475,338             |
| 02        | Conductor/conduit & wiring (approximate)                                                                   | 25,500           | LF   | \$ 13.50      | \$ 344,250             |
| 03        | Excavation/ foundation                                                                                     | 110              | EA   | \$ 1,150.00   | \$ 126,500             |
|           | <b>Communication - Fiber Optic System</b>                                                                  |                  |      |               | <b>\$ 93,135</b>       |
| 01        | Clean & polish fiber communication cables                                                                  | 8,700            | Conn | \$ 4.85       | \$ 42,195              |
| 02        | Surface restoration                                                                                        | 8,490            | SF   | \$ 6.00       | \$ 50,940              |
|           | <b>Site Preparation</b>                                                                                    |                  |      |               | <b>\$ 139,228</b>      |
| 01        | Erosion control (silt fence)                                                                               | 3,857            | LF   | \$ 3.50       | \$ 13,500              |
| 02        | 6' Temp chain link construction fence                                                                      | 3,857            | LF   | \$ 15.00      | \$ 57,855              |
| 03        | Stabilized construction entrance 6" # 2 stone bedding 24' x 100'                                           | 45               | CY   | \$ 50.00      | \$ 2,250               |
| 04        | Clearing & grubbing                                                                                        | 187,497          | SF   | \$ 0.25       | \$ 46,874              |
| 05        | Catch basin & Inlet protection                                                                             | 187,497          | SF   | \$ 0.10       | \$ 18,750              |
|           | <b>Parking Lot 1 and Adjacent Roadways</b>                                                                 |                  |      |               | <b>\$ 1,615,089</b>    |
| 01        | <b>Site preparation</b>                                                                                    |                  |      |               |                        |
| 02        | Bring to site grade                                                                                        | 99,524           | SF   | \$ 1.50       | \$ 149,286             |
| 03        | Remove existing asphalt / landscape                                                                        | 99,524           | SF   | \$ 1.50       | \$ 149,286             |
| 04        | Restoring landscape area                                                                                   | 8,674            | SF   | \$ 1.00       | \$ 8,674               |
| 05        | Full depth new asphalt pavement                                                                            | 9,788            | SY   | \$ 65.00      | \$ 636,242             |
| 06        | Driveways                                                                                                  | 1,823            | SY   | \$ 65.00      | \$ 118,482             |
| 07        | Parking lot striping                                                                                       | 83,900           | SF   | \$ 0.25       | \$ 20,975              |
| 08        | Granite curb                                                                                               | 1,866            | LF   | \$ 35.00      | \$ 65,310              |
| 09        | Parking lot lighting (allowance)                                                                           | 10               | EA   | \$ 7,500.00   | \$ 75,000              |
| 10        | Concrete Sidewalks                                                                                         | 2,900            | LF   | \$ 15.00      | \$ 43,500              |
| 11        | **Parking drainage and storm water management (allowance)                                                  | 99,524           | SF   | \$ 3.50       | \$ 348,334             |
|           | <b>Asphalt Pavement</b>                                                                                    |                  |      |               | <b>\$ 236,522</b>      |
| 01        | Remove existing pavement                                                                                   | 1,978            | SF   | \$ 1.50       | \$ 2,967               |
| 02        | Full depth asphalt Pavement - driveways east of Residence Halls                                            | 1,978            | SY   | \$ 65.00      | \$ 128,570             |
| 03        | ***Mill & Fill Top Course of Pavement- Cornell Drive- Select Locations near Cooper Service & Parking Lot 5 | 2,333            | SY   | \$ 45.00      | \$ 104,985             |
|           | <b>Site Amenities</b>                                                                                      |                  |      |               | <b>\$ 68,475</b>       |
| 01        | Removal & replacement of veneer façade- Southworth Library and Payson Hall retaining walls                 | 1,245            | SF   | \$ 55.00      | \$ 68,475              |
| 02        | General Landscaping/Screening                                                                              | 65,000           | SF   | \$ 2.00       | \$ 130,000             |
|           |                                                                                                            | <b>SUB-TOTAL</b> |      |               | <b>\$ 6,273,197.33</b> |

|                                                               |                                           |       |    |           |          |
|---------------------------------------------------------------|-------------------------------------------|-------|----|-----------|----------|
| <b>*** Break Out: Milling and New Course for 800 SY (FYI)</b> |                                           |       |    |           |          |
| 01                                                            | Cold Milling Asphalt Paving 1" to 3" deep | 7,200 | SF | \$ 1.25   | \$ 9,000 |
| 02                                                            | Asphalt pavement removal and haul         | 8     | CY | \$ 680.00 | \$ 5,100 |
| 03                                                            | Rip and Sweep                             | 7,200 | SF | \$ 0.70   | \$ 5,040 |

## Detailed Estimate

### PHASE 1 (Years 1-5)

| SITE WORK |                                                                               |        |    |             |            |
|-----------|-------------------------------------------------------------------------------|--------|----|-------------|------------|
| 04        | Tack Coating                                                                  | 7,200  | SF | \$ 0.95     | \$ 6,840   |
| 05        | Top Course- Wearing surface 1" to 3" Thick                                    | 800    | SY | \$ 12.55    | \$ 10,040  |
|           |                                                                               |        |    |             |            |
|           | <b>** Break Out: Stormwater Allowance for 100,000 sf parking lot</b>          |        |    |             |            |
|           | Excavation/Backfill for storm structure                                       | 1,000  | CY | \$ 50.00    | \$ 50,000  |
|           | 12" HDPE storm piping                                                         | 1,500  | LF | \$ 42.00    | \$ 63,000  |
|           | Storm drainage structure (catch basin, drywells, area drain & etc. up to 420) | 20     | EA | \$ 5,500.00 | \$ 110,000 |
|           | Stormwater Management Basin                                                   | 10,000 | SF | \$ 10.00    | \$ 100,000 |
|           | 6" perforated underdrains                                                     | 2,000  | LF | \$ 15.00    | \$ 30,000  |
|           | rounds to approximately \$3.50 per square foot of parking lot                 |        |    |             |            |

## Detailed Estimate

### BREAKOUT PHASE 1 PROJECT

#### Scope of Work:

Dana Hall Area Utility and Landscape Improvements

| SITE WORK |                                                                  |          |      |              |                   |
|-----------|------------------------------------------------------------------|----------|------|--------------|-------------------|
|           | ITEM                                                             | QUANTITY | UNIT | UNIT PRICE   | AMOUNT            |
|           | <b>Site Preparation</b>                                          |          |      |              | <b>\$ 17,569</b>  |
| 01        | Erosion control (Silt Fence)                                     | 575      | LF   | \$ 3.50      | \$ 2,013          |
| 02        | 6' Temp chain Link construction fence                            | 600      | LF   | \$ 15.00     | \$ 9,000          |
| 03        | Stabilized construction entrance 6" # 2 stone bedding 24' x 100' | 45       | CY   | \$ 50.00     | \$ 2,250          |
| 04        | Clearing & grubbing                                              | 14,078   | SF   | \$ 0.15      | \$ 2,112          |
| 05        | Tree and shrub protection                                        | 8,778    | SF   | \$ 0.25      | \$ 2,195          |
|           | <b>Parking lot 5</b>                                             |          |      |              | <b>\$ 751,242</b> |
| 01        | <b>Site preparation</b>                                          |          |      |              |                   |
| 02        | Bring to site grade                                              | 70,250   | SF   | \$ 0.15      | \$ 10,538         |
| 03        | Remove existing asphalt / landscape                              | 45,715   | SF   | \$ 1.50      | \$ 68,573         |
| 05        | **Full depth new asphalt pavement (Lot 5)                        | 5,188    | SY   | \$ 65.00     | \$ 337,201        |
| 06        | 12" Granular fill compact                                        | Inc-Abv  |      |              |                   |
| 07        | Geotextile                                                       | Inc-Abv  |      |              |                   |
| 08        | 12" # 1&2 crusher run, DOT Item #304 compacted                   | Inc-Abv  |      |              |                   |
| 09        | 2.5" asphalt binder                                              | Inc-Abv  |      |              |                   |
| 10        | 1.5" Asphalt top                                                 | Inc-Abv  |      |              |                   |
| 11        | Parking lot striping                                             | 45,715   | SF   | \$ 0.25      | \$ 11,429         |
| 12        | Granite curb (Assume)                                            | 2,100    | LF   | \$ 35.00     | \$ 73,500         |
| 13        | Parking lot lighting (Allowance)                                 | 12       | EA   | \$ 7,500.00  | \$ 90,000         |
| 14        | Parking drainage and storm water management (Allowance)          | 45,715   | SF   | \$ 3.50      | \$ 160,003        |
|           | <b>DANA HALL Utilities</b>                                       |          |      |              | <b>\$ 312,479</b> |
|           | <b>Water Main</b>                                                |          |      |              |                   |
| 01        | Excavation/Backfill {(4' x 4' x 780)/27}*2                       | 921      | CY   | \$ 50.00     | \$ 46,044         |
| 02        | Remove and replace 6" DIP water services and hydrant lines       | 210      | LF   | \$ 52.33     | \$ 10,989         |
| 03        | Remove and replace 10" DIP water Main                            | 567      | LF   | \$ 56.33     | \$ 31,939         |
| 04        | Replace check valve system east of Dana Hall                     | 1        | EA   | \$ 1,429.28  | \$ 1,429          |
| 05        | Install double check valve on domestic line                      | 1        | EA   | \$ 2,187.60  | \$ 2,188          |
| 06        | Surface restoration                                              | 7,770    | SF   | \$ 6.00      | \$ 46,620         |
|           | <b>Gas Main</b>                                                  |          |      |              |                   |
| 01        | Excavation/Backfill {(2' x 3' x 470)/27}*2                       | 209      | CY   | \$ 50.00     | \$ 10,444         |
| 02        | Remove and replace 3" PVC gas main pipe                          | 309      | LF   | \$ 64.50     | \$ 19,931         |
| 03        | Remove and replace 2.5" PVC gas laterals                         | 121      | LF   | \$ 64.50     | \$ 7,805          |
| 04        | Remove and replace 2" PVC gas laterals                           | 40       | LF   | \$ 64.50     | \$ 2,580          |
| 05        | Replace gas valve                                                | 1        | EA   | \$ 4,681.32  | \$ 4,681          |
| 06        | Replace gas meter (Wicks/Dana Halls)                             | 2        | EA   | \$ 2,458.40  | \$ 4,917          |
| 07        | Surface Restoration (5 x 470)                                    | 2,350    | SF   | \$ 6.00      | \$ 14,100         |
|           | <b>Sanitary &amp; Sewer</b>                                      |          |      |              |                   |
| 01        | Excavation/Backfill {(4x4 x 300/27)}*2                           | 356      | CY   | \$ 50.00     | \$ 17,778         |
| 02        | Remove and replace 8" PVC sewer                                  | 300      | LF   | \$ 111.97    | \$ 33,591         |
| 03        | Replace SMH51                                                    | 1        | EA   | \$ 10,000.00 | \$ 10,000         |

## Detailed Estimate

### BREAKOUT PHASE 1 PROJECT

#### Scope of Work:

Dana Hall Area Utility and Landscape Improvements

|    |                                                                                                  |                  |    |             |                        |
|----|--------------------------------------------------------------------------------------------------|------------------|----|-------------|------------------------|
| 04 | Tie-in existing structure (SMH50)                                                                | 1                | LS | \$ 1,500.00 | \$ 1,500               |
| 05 | Surface restoration (Overland) (30 x 300)                                                        | 9,000            | SF | \$ 0.50     | \$ 4,500               |
|    | <b>Storm Sewer</b>                                                                               |                  |    |             |                        |
| 01 | Excavation/Backfill {(233 x 4x 4/27))*2                                                          | 276              | CY | \$ 50.00    | \$ 13,807              |
| 02 | Remove and replace 12" HDPE storm sewer                                                          | 88               | LF | \$ 42.00    | \$ 3,696               |
| 03 | Remove and replace 15" HDPE storm sewer                                                          | 70               | LF | \$ 48.00    | \$ 3,360               |
| 04 | Remove and replace 24" HDPE storm sewer                                                          | 75               | LF | \$ 68.00    | \$ 5,100               |
| 05 | Tie-in existing structure                                                                        | 1                | LS | \$ 1,500.00 | \$ 1,500               |
| 06 | Surface restoration (10 x 233)                                                                   | 2,330            | SF | \$ 6.00     | \$ 13,980              |
|    | <b>Landscape Improvement</b>                                                                     |                  |    |             | <b>\$ 705,406</b>      |
| 01 | Bring to site grade                                                                              | 9,000            | SF | \$ 2.50     | \$ 22,500              |
| 02 | Landscape area                                                                                   | 3,145            | SF | \$ 10.00    | \$ 31,450              |
| 03 | Trees/Shrubs                                                                                     | 16               | EA | \$ 600.00   | \$ 9,600               |
| 04 | New decorative pavers over sand bedding/Geo fabric                                               | 3,823            | SF | \$ 40.00    | \$ 152,920             |
| 05 | New concrete sidewalks                                                                           | 9,392            | SF | \$ 9.25     | \$ 86,876              |
| 06 | Granite curb (Assume)                                                                            | 1,030            | LF | \$ 40.00    | \$ 41,200              |
| 07 | New concrete retaining walls (assume 4'6" x 1' High)                                             | 51               | CY | \$ 750.00   | \$ 38,000              |
| 08 | Retaining wall foundation (1'x4' x 304')/27                                                      | 45               | CY | \$ 750.00   | \$ 33,778              |
| 09 | New concrete ramp                                                                                | 2,665            | SF | \$ 10.50    | \$ 27,983              |
| 10 | New ramp hand railing floor mounted                                                              | 160              | LF | \$ 85.00    | \$ 13,600              |
| 11 | Removal and replacement of the veneer façade @ Wickes Hall retaining wall (Allowance) (300 x 15) | 4,500            | SF | \$ 55.00    | \$ 247,500             |
|    |                                                                                                  |                  |    |             |                        |
|    |                                                                                                  | <b>SUB-TOTAL</b> |    | \$ -        | <b>\$ 1,786,696.20</b> |

#### **\*\* Break Out Full Depth Asphalt Pavement**

|    |                                                |        |    |          |                   |
|----|------------------------------------------------|--------|----|----------|-------------------|
| 01 | Full depth new asphalt pavement (Lot 5)        |        |    |          | <b>\$ 337,409</b> |
| 02 | 12" Granular fill compact                      | 1,647  | CY | \$ 30.00 | \$ 49,410         |
| 03 | Geotextile                                     | 44,467 | SF | \$ 0.90  | \$ 40,020         |
| 04 | 12" # 1&2 crusher run, DOT Item #304 compacted | 1,647  | CY | \$ 40.00 | \$ 65,880         |
| 05 | 2.5" asphalt binder                            | 5,188  | SY | \$ 22.55 | \$ 116,989        |
| 06 | 1.5" Asphalt top                               | 5,188  | SY | \$ 12.55 | \$ 65,109         |

**Detailed Estimate**  
**PHASE 2 (Years 6-10)**

**Scope of Work:**

Limited Utility Upgrades, Provide Redundant Gas/Water Mains  
New Pavement/Parking Lots

| SITE WORK |                                                                                                                    |          |      |             |                     |
|-----------|--------------------------------------------------------------------------------------------------------------------|----------|------|-------------|---------------------|
|           | ITEM                                                                                                               | QUANTITY | UNIT | UNIT PRICE  | AMOUNT              |
|           | <b>Asphalt Pavement</b>                                                                                            |          |      |             | <b>\$ 5,686,348</b> |
| 01        | Remove Existing Asphalt / Landscape                                                                                | 318,312  | SF   | \$ 1.50     | \$ 477,468          |
| 02        | Full Depth Asphalt Pavement (Lot 3, Payson Drive, Dana Hall Loading Drives)                                        | 10,130   | SY   | \$ 65.00    | \$ 658,450          |
| 03        | Full Depth Asphalt Pavement (Lot 7)                                                                                | 15,211   | SY   | \$ 65.00    | \$ 988,715          |
| 04        | Full Depth Asphalt Pavement (Lot 8)                                                                                | 3,150    | SY   | \$ 65.00    | \$ 204,750          |
| 05        | Full Depth Asphalt Pavement (Lot 12)                                                                               | 6,877    | SY   | \$ 65.00    | \$ 447,005          |
| 06        | Full depth asphalt pavement (walkway btw Mohawk & Chaney dining center)                                            | 1,265    | SY   | \$ 65.00    | \$ 82,225           |
| 07        | Cornell Drive - Mill & Top Course Placement                                                                        | 20,650   | SY   | \$ 45.00    | \$ 929,250          |
| 08        | Granite Curb                                                                                                       | 4,709    | LF   | \$ 35.00    | \$ 164,815          |
| 09        | Parking lot striping                                                                                               | 318,312  | SF   | \$ 0.25     | \$ 79,578           |
| 10        | Parking Lot Lighting (Allowance)                                                                                   | 60       | EA   | \$ 7,500.00 | \$ 450,000          |
| 11        | General Landscaping- Grasse River Suites                                                                           | 45,000   | SF   | \$ 2.00     | \$ 90,000           |
| 12        | Parking drainage and storm water management (Allowance)                                                            | 318,312  | SF   | \$ 3.50     | \$ 1,114,092        |
|           | <b>Storm Sewer</b>                                                                                                 |          |      |             | <b>\$ 114,165</b>   |
| 01        | Excavation/Backfill                                                                                                | 647      | CY   | \$ 50.00    | \$ 32,356           |
| 02        | Replace Existing 24" HDPE Storm Piping                                                                             | 421      | LF   | \$ 68.00    | \$ 28,628           |
| 03        | Replace Existing 36" HDPE Storm Piping                                                                             | 307      | LF   | \$ 103.22   | \$ 31,689           |
| 04        | Surface Restoration                                                                                                | 7,280    | SF   | \$ 2.00     | \$ 14,560           |
| 05        | Road Crossing restoration (2 location)                                                                             | 58       | SY   | \$ 120.00   | \$ 6,933            |
|           | <b>Sanitary Sewer</b>                                                                                              |          |      |             | <b>\$ 41,250</b>    |
| 01        | Relining of 12" Cast Iron Pipe Sewer Below Grasse River                                                            | 330      | LF   | \$ 125.00   | \$ 41,250           |
|           | <b>Natural Gas Upgrade</b>                                                                                         |          |      |             | <b>\$ 109,648</b>   |
| 01        | Excavation/Backfill                                                                                                | 533      | CY   | \$ 50.00    | \$ 26,667           |
| 02        | Install second redundant Gas main Serving the Campus.                                                              | 900      | LF   | \$ 75.00    | \$ 67,500           |
| 03        | Gas Meter Service Valves Station/w pressure reducing valve assembly                                                | 1        | EA   | \$ 4,681.32 | \$ 4,681            |
| 04        | Surface Restoration                                                                                                | 5,400    | SF   | \$ 2.00     | \$ 10,800           |
|           | <b>Water System Upgrade</b>                                                                                        |          |      |             | <b>\$ 108,453</b>   |
| 01        | Excavation/Backfill                                                                                                | 1,007    | CY   | \$ 50.00    | \$ 50,370           |
| 02        | Install second redundant 10" DIP water main serving the Campus.                                                    | 850      | LF   | \$ 56.33    | \$ 47,882           |
| 03        | Surface Restoration                                                                                                | 5,100    | SF   | \$ 2.00     | \$ 10,200           |
|           | <b>Electrical Services Upgrade</b>                                                                                 |          |      |             | <b>\$ 552,450</b>   |
| 01        | Connect medium Voltage distribution system between Wicks Hall, Cooper Services Building, French Hall and Cook Hall | 1,270    | LF   | \$ 435.00   | \$ 552,450          |
|           | <b>Sidewalk Upgrades/Pedestrian Lighting</b>                                                                       |          |      |             | <b>\$ 43,500</b>    |
| 01        | Concrete Sidewalk                                                                                                  | 2,900    | LF   | \$ 15.00    | \$ 43,500           |
| 02        | Pedestrian Lighting along sidewalks                                                                                | 30       | EA   | \$ 7,500.00 | \$ 225,000          |

**Detailed Estimate**  
**PHASE 2 (Years 6-10)**

**Scope of Work:**

Limited Utility Upgrades, Provide Redundant Gas/Water Mains  
 New Pavement/Parking Lots

| SITE WORK |                                                                  |         |    |          |              |
|-----------|------------------------------------------------------------------|---------|----|----------|--------------|
|           | Site Preparation                                                 |         |    |          | \$           |
| 01        | Erosion Control (Silt Fence)                                     | 5,792   | LF | \$ 3.50  | \$ 20,272    |
| 02        | 6' Temp Chain Link construction fence                            | 5,792   | LF | \$ 15.00 | \$ 86,880    |
| 03        | Stabilized construction entrance 6" # 2 stone Bedding 24' x 100' | 270     | CY | \$ 50.00 | \$ 13,500    |
| 04        | Clearing & Grubbing                                              | 76,800  | SF | \$ 0.25  | \$ 19,200    |
| 05        | Catch basin & Inlet protection                                   | 246,600 | SF | \$ 0.10  | \$ 24,660    |
|           |                                                                  |         |    |          |              |
| SUB-TOTAL |                                                                  |         |    |          | \$ 6,776,826 |

## Detailed Estimate

### Long Term

#### Scope of Work:

Long Term Projects  
 Replace Existing Communication System  
 Replace Remainder of Water Main in Low Pressure Zone & Remainder of Interior Lighting

| SITE WORK |                                                                                                                   |           |      |             |                     |
|-----------|-------------------------------------------------------------------------------------------------------------------|-----------|------|-------------|---------------------|
|           | LONG TERM PROJECT                                                                                                 | QUANTITY  | UNIT | UNIT PRICE  | AMOUNT              |
|           | <b>Communication Upgrade</b>                                                                                      |           |      |             | <b>\$ 4,182,291</b> |
| 01        | Install new communication loop-SONET ring type (per Comm. Report)                                                 | 1,061,880 | GSF  | \$ 3.85     | \$ 4,088,238        |
| 02        | Phase out copper phone cable-system and implement VOIP                                                            | 8,790     | LF   | \$ 10.70    | \$ 94,053           |
|           | <b>Water Main Upgrade</b>                                                                                         |           |      |             | <b>\$ 366,795</b>   |
| 01        | Replace remainder of old water main installed in lower pressure zone (mains, hydrant leaders and water services). | 4,500     | LF   | \$ 81.51    | \$ 366,795          |
|           | <b>Electrical /CommunicationServices &amp; Site Lighting</b>                                                      |           |      |             | <b>\$ 946,719</b>   |
| 01        | Site Lighting:(remainder light fixtures not replace in phase#1 & #2) w/LED fixtures                               | 175       | EA   | \$ 4,321.25 | \$ 756,219          |
| 02        | Conductor/conduit & wiring (Approximate)                                                                          | 9,000     | LF   | \$ 13.50    | \$ 121,500          |
| 03        | Excavation/foundation                                                                                             | 60        | EA   | \$ 1,150.00 | \$ 69,000           |
|           | <b>SUB-TOTAL</b>                                                                                                  |           |      | \$ -        | <b>\$ 5,495,805</b> |