WASHINGTON PARK STORMWATER MITIGATION

ENVIRONMENTAL ASSESSMENT

New York State Governor's Office of Storm Recovery
May 26, 2017

Washington Park Stormwater Mitigation
Environmental Assessment

May 26, 2017

Project Name:	Washington Park Stormwater Mitigation
Project Location:	Washington Park Neighborhood, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, New York 12472
Federal Agency:	U.S. Department of Housing and Urban Development (HUD)
Responsible Entity:	New York State Homes and Community Renewal (HCR) Governor's Office of Storm Recovery (GOSR)
Responsible Agency's Certifying Officer:	Lori A. Shirley, Certifying Environmental Officer 38-40 State Street, Hampton Plaza Albany, New York 12207 (518) 474-0755, Lori.Shirley@nyshcr.org
Project Sponsor: **Primary Contact:**	Town of Rosendale Jeanne L. Walsh, Town Supervisor 1915 Lucas Avenue Cottekill, NY 12419 (845) 658-3159, supervisor@townofrosendale.com
Project NEPA Classification:	24 CFR 58.36 (Environmental Assessment)

Environmental Finding:	☒ Finding of No Significant Impact - The project will not result in a significant impact on the quality of the human environment.
	☐ Finding of Significant Impact - The project may significantly affect the quality of the human environment.
Certification	The undersigned hereby certifies that New York State Homes and Community Renewal has conducted an environmental review of the project identified above and prepared the attached environmental review record in compliance with all applicable provisions of the National Environmental Policy Act of 1969, as amended (42 USC Sec. 4321 et seq.) and its implementing regulations at 24 CFR Part 58.
Signature	Lori A Shirley Lori A. Shirley

Environmental Assessment Prepared By:	Tectonic Engineering & Surveying Consultants, P.C. 70 Pleasant Hill Road Mountainville, New York 10953

CERTIFICATION OF NEPA CLASSIFICATION

It is the finding of the New York State Housing Trust Fund Corporation that the activity(ies) proposed in its 2015 NYS CDBG-DR project, Washington Park Stormwater Mitigation Project are:
Project Year Project Name

Check the applicable classification.

- ☐ Exempt as defined in 24 CFR 58.34 (a).
- ☐ Categorically Excluded as defined in 24 CFR 58.35(b).
- ☐ Categorically Excluded as defined in 24 CFR 58.35(a) and no activities are affected by federal environmental statues and executive orders [i.e., exempt under 58.34(a)(12)].
- ☐ Categorically Excluded as defined in 24 CFR 58.35(a) and some activities are affected by federal environmental statues and executive orders.
- ☒ "Other" neither exempt (24 CFR 58.34(a)) nor categorically excluded (24 CFR 58.35).
- ☐ Part or all of the project is located in an area identified as a floodplain or wetland. For projects located in a floodplain or wetland, evidence of compliance with Executive Orders 11988 and/or 11990 is required.

For activities excluding those classified as "Other", attached is the appropriate Classification Checklist (Exhibit 2-4) that identifies each activity and the corresponding citation.

Lori A Shirley
Signature of Certifying Officer

5/26/17
Date

Lori A. Shirley
Print Name

Certifying Environmental Officer
Title

CERTIFICATION OF SEQRA CLASSIFICATION

It is the finding of the New York State Housing Trust Fund Corporation that the activity(ies) proposed in its 2015 NYS CDBG-DR project, Washington Park Stormwater Mitigation Project are:
Project Year Project Name

Check the applicable classification:

- ☐ Type I Action (6NYCRR Section 617.4)
- ☐ Type II Action (6NYCRR Section 617.5)
- ☒ Unlisted Action (not Type I or Type II Action)

Check if applicable:

- ☐ Environmental Impact Statement (EIS) Prepared
  - ☐ Draft EIS
  - ☐ Final EIS

Lori A Shirley
Signature of Certifying Officer

5/26/17
Date

Lori A. Shirley
Print Name

Certifying Environmental Officer
Title

Description of the Proposed Project [24 CFR 50.12 & 58.32; 40 CFR 1508.25]**:**

Project Name: Washington Park Stormwater Mitigation Project

Location: Washington Park Neighborhood, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, New York 12472

Description:
The Washington Park Stormwater Mitigation Project involves the installation of culvert pipes, drainage ditches, swales, catch basins, storm sewers, manhole, and a pedestrian bridge in the Town of Rosendale, Ulster County, New York (see proposed project location maps in **Attachment 1**). Washington Park, the residential area located northwest of the intersection of New York State (NYS) Route 32 and NYS Route 213, has been subjected to historic, chronic flooding during large rain events. The proposed project site is situated in the Washington Park neighborhood in the area of Hillside Avenue to Josephine Avenue. The proposed drainage improvements will effectively convey water during 50-year storm events and alleviate chronic flooding problems. Additionally, this will further protect the residents' public health and safety, safeguard infrastructure, and enhance emergency response operations during severe storm events. The final design site plans, pedestrian bridge plans, and required easements plans are included in **Attachment 2**.

Project Activities:
HUD Community Development Block Grant – Disaster Recovery (CDBG-DR) program funding is proposed for the improvement of two defined drainageways that cross through the Washington Park neighborhood and construction of a pedestrian bridge. The total project cost is $1,137,000.00 to be paid for with CDBG-DR funds toward implementing the project. The Eastern Drainage System consists of runoff from a mountain to the north and runoff from Fann's Plaza conveyed by storm sewers to an existing United States Army Corps of Engineers (USACE) flood control ponding area located on the south side of the proposed project site. The Western Drainage System consists of runoff from a north-south running mountain ridge to the west, conveyed via a swale at the base of the mountainridge to a storm sewer system that crosses under West End Avenue and Josephine Avenue to an existing USACE ponding area on the west side of Central Avenue. Further details on the improvements to the Eastern and Western Drainage Systems are discussed below. The proposed project will also involve the construction of a pedestrian bridge over a ditch that is located between Central Avenue and NYS Route 32. The pedestrian bridge will be 60 feet long and will be installed at an elevation of 58 feet, which is 2 feet above the 100-year Base Flood Elevation (BFE) of 56 feet. Proposed project location maps are included in **Attachment 1**.

Improvement of the Eastern Drainage System will involve the construction of the following: a drainage swale along Hillside Avenue; a new storm sewer along West Street (from Hillside Avenue to Washington Avenue); a new storm sewer on Washington Avenue (from West Street to where it crosses under Washington Avenue); and a new storm sewer from Washington Avenue to the USACE ponding area. An existing USACE ponding area will also be regraded to provide a uniform alignment and cross sectional area that is consistent with the original USACE Rondout Creek Flood Control design. Proposed Eastern Drainage System improvements will include the installation of 181 linear feet (LF) of 48" diameter high-density polyethylene (HDPE) culvert pipe, 46 LF of 36" diameter HDPE culvert pipe, 745 LF of 24" diameter HDPE culvert pipe, 46 LF of 18" diameter HDPE culvert pipe, nine catch basins, and one storm sewer manhole. There are a total of eight trees located east of NYS Route 32 and south of Washington Avenue that will be removed for project construction. These trees are situated between residential and commercial properties.

Improvement of the Western Drainage System will involve the construction of a drainage swale along the mountainside from the intersection of Central Avenue and Hillside Avenue to SBL# 62.82-1-4 (37 West End Avenue) and a new storm sewer from SBL# 62.82-1-4 (37 West End Avenue) to the existing USACE ponding area on the south side of Josephine Avenue. The Western Drainage System will be designed with a filter fabric lined trench and one perforated 30" HDPE pipe to provide positive relief of any potential shallow groundwater levels. Shallow groundwater would drain by gravity through a one-foot thick stone layer under the pipe and the perforated pipe. Proposed Western Drainage System improvements will include the installation of 1,002 LF of 30" diameter HDPE culvert pipe (dual culvert 501 LF) and five catch basins. The proposed mountainside drainage swale crosses through nine private properties. During project construction, four trees will be removed from West End Avenue and two trees will be removed on Josephine Avenue, where the proposed drainage system would intersect the roadway. These trees are located in the right-of-way adjacent to residential properties. Temporary construction easements and permanent drainage maintenance easements will have to be obtained.

Statement of Purpose and Need for the Proposal [40 CFR 1508.9(b)]:
This funding assistance will provide for the installation of stormwater mitigation systems and a pedestrian bridge in the Town of Rosendale to improve stormwater drainage along Washington Park and address flooding during heavy rainfall events. The FEMA Flood Insurance Rate Map (Firmette) is included in **Attachment 4**.

During Hurricane Irene and Tropical Storm Lee, the Washington Park neighborhood was inundated by stormwater which could not be conveyed out of the area by the existing stormwater infrastructure. The neighborhood flooded from three directions – north, east, and west. From the north, stormwater entered the neighborhood from an inclined area adjacent to Hillside Avenue, overwhelming the roadside drainage ditch, and coursed southward down West Avenue. This stormwater collected at the intersection of West Avenue and Washington Avenue, where in normal conditions, the stormwater would enter a drain grate traveling beneath Washington Avenue and subsequently discharging into a small north/south creek that ultimately carries stormwater to the USACE flood control area south of the neighborhood. However, given the high volume of stormwater, the water overwhelmed the present drainage infrastructure, flooded homes on West and Washington Avenues between West Avenue and NYS Route 32, and forced the Town to close the street to traffic. Flooding depths at the low point of Washington Avenue exceeded 3 feet. Fann's Plaza, a commercial retail shopping center that abuts the neighborhood and whose large parking area is typically used as a staging area for emergency vehicles and operations due to its centralized location, was also hemmed in by stormwater and rendered unsuitable as a staging area. This further hindered the Town's ability to conduct emergency operations during the storm events. (See NYRCR Program Washington Park Stormwater Mitigation Project Application for Funding, December 2015).

Most of the residents of the area were stranded until the floodwaters receded. Emergency responders and residents were only able to access the neighborhood from the south via Central Avenue up to Josephine Avenue. The rest of the neighborhood was inaccessible due to severe flooding along West End Avenue. The excessive rainfall down the steep mountainside terrain inundated an unlined drainage ditch below and flooded homes along West End Avenue. The stormwater damaged the neighborhood streets, shifted homes from their foundations, filled basements, and damaged undersized culverts installed beneath driveway ingresses all along West End Avenue. This area is currently served by municipal stormwater drainage and open ditches that are easily overwhelmed by heavy rain events, which has resulted in the residents being stranded by high water conditions and prevented emergency responders from providing services beyond the flooded area. Therefore, the proposed project activities are urgently needed to greatly reduce flood risk and provide for a more timely response during future disaster events. This project will mitigate localized flooding that occurs during heavy rainfall events, such as those experienced in the neighborhood during Hurricane Irene and Tropical Storm Lee.

Existing Conditions and Trends [24 CFR 58.40(a)]:
The Washington Park neighborhood is located west of NYS Route 32 and north of the USACE ponding area located north of Main Street. Washington Park is a residential neighborhood in the Town of Rosendale with thirty-eight residences that are a combination of single-family residential buildings and manufactured homes, and one commercial property. Washington Park is situated at the base of a mountain ridge, with the land generally trending north to south at a 2 percent to 5 percent slope. There are two defined drainageways that cross through Washington Park, where stormwater runoff is conveyed by storm sewers to the USACE ponding area located on the south side of the site. This proposed project site is located in an area that is primarily residential, with businesses located immediately east of the Washington Park neighborhood (Location Maps: **Attachment 1**; Ulster County Municipal Zoning Map: **Attachment 7**).

Funding Information
Estimated Total Project Cost (HUD and non-HUD funds) [24 CFR 58.32(d)]**: $1,137,000.00**

Estimated Total HUD-Funded Amount:

CDBG-DR	$1,137,000.00	Public Facilities
Total	**$1,137,000.00**	

Compliance with 24 CFR 58.5, and 58.6 Laws and Authorities

Record below the compliance or conformance determinations for each statute, executive order, or regulation. Provide credible, traceable, and supportive source documentation for each authority. Where applicable, complete the necessary reviews or consultations and obtain or note applicable permits of approvals. Clearly note citations, dates/names/titles of contacts, and page references. Attach additional documentation as appropriate.

Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	**Compliance determinations**
STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 and 58.6		
Airport Hazards 24 CFR Part 51 Subpart D	Yes ☐ No ☒	Based on guidance provided by HUD via Fact Sheet #D1, the National Plan of Integrated Airport Systems (NPIAS) was reviewed for civilian, commercial service and military airports located near the proposed project site. There are no civilian, commercial service airports located within 2,500 feet of the proposed project site. There are no military airports located within 15,000 feet of the proposed project site (**Attachment 1**). No additional review is required. Fact Sheet #D1: Siting HUD-Assisted Projects in Accident Potential Zones
Coastal Barrier Resources Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 [16 USC 3501]	Yes ☐ No ☒	Based on the United States Fish and Wildlife Service (USFWS) Coastal Barrier Resources System Map, the proposed project site is not located in or immediately adjacent (within 150 feet) to a Coastal Barrier Resource System Unit or Otherwise Protected Area (**Attachment 3**). https://www.fws.gov/ecological-services/habitat-conservation/cbra/Maps/index.html
Flood Insurance Flood Disaster Protection Act of 1973 and National Flood Insurance Reform Act of 1994 [42 USC 4001-4128 and 42 USC 5154a]	Yes ☐ No ☒	Based on the FEMA Firmette 36111C0605E, the proposed project site is not located within a FEMA designated 100-year flood zone. The Floodplain Management Determination (Executive Order [EO] 11988) and the FEMA Firmette for this project are included in **Attachment 4**. https://msc.fema.gov/portal

STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 & 58.5		
Clean Air Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR Parts 6, 51, 93	Yes No ☐ ☒	The proposed project site is located in Ulster County, which is listed as a current attainment county for ozone, particulate matter, sulfur dioxide, lead, carbon monoxide, and nitrogen dioxide (**Attachment 1**). Therefore, the federal general conformity regulations do not apply, and a conformity and screening analysis was not performed according to the requirements of 40 CFR 93, Subpart B. The proposed project involves stormwater mitigation activities within the Town of Rosendale (see project location maps in **Attachment 1**). Construction of the project will not generate significant levels of new vehicular traffic; therefore, no exceedances of the National Ambient Air Quality Standard (NAAQS) associated with carbon monoxide (CO) or particulate matter (PM) is anticipated to occur. The proposed project will not result in siting any new major source of air pollutants as this proposed project involves installation of stormwater mitigation systems and a pedestrian bridge. The proposed project does not involve work that will substantively affect the New York State Department of Environmental Conservation (NYSDEC) Air Quality State Implementation Plan (SIP). Any air quality impacts will be short-term and localized during construction and, therefore, no significant adverse impacts to air quality are anticipated. However, it is recommended that construction activities are conducted in such a way as to ensure acceptable air quality during these activities (e.g., through minimization of volatile organic compounds and nitrogen oxides emissions, mindful operation of gas-powered construction equipment to avoid prolonged idling, or fugitive dust management during construction). It is also recommended that low-VOC materials and inventory and energy star efficient equipment are used, as practicable. U.S. Environmental Protection Agency (EPA), Nonattainment Areas for Criteria Pollutants https://www.epa.gov/green-book Ozone specific: https://www3.epa.gov/airquality/greenbook/hbca.html#Ozone_8-hr.2008.New_York

		EPA, Recent Updates: Federal Register Notices Published or Effective After September 22, 2016 http://www.epa.gov/airquality/greenbook/adden.html
Coastal Zone Management Coastal Zone Management Act, sections 307(c) & (d)	Yes No ☐ ☒	Not applicable. The proposed project site is not located within the New York State Coastal Boundary or a Local Waterfront Revitalization Program Community (**Attachment 3**).
Contamination and Toxic Substances 24 CFR Part 50.3(i) & 58.5(i)(2)	Yes No ☐ ☒	**<u>Subject Property Records Review</u>** **Subject Property Description:** The proposed project consists of installation of stormwater mitigation systems and a pedestrian bridge within the Washington Park neighborhood, and no occupied structures are proposed. The proposed project site, referred to in this section as the Subject Property and as shown in **Attachment 2**, spans parts of Washington Avenue, Central Avenue, Josephine Avenue, West End Avenue, West Street, and Hillside Avenue. **County Records:** The Subject Property is not located within 3,000 feet of a toxic or solid waste landfill site. **EPA Records:** The Subject Property is not listed on an EPA Superfund National Priorities or CERCLA list or equivalent State list. A review of the EPA Facilities Database provides no indication of past uses of the Subject Property that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property. **NYSDEC Records:** According to the NYSDEC Spill Incidents Database, there have been three spills reported on the Subject Property. These three spills have been closed by the NYSDEC. A spill closure by the NYSDEC demonstrates that the records and data submitted for the spill demonstrated that the necessary cleanup and removal actions have been completed and no further remedial actions are necessary under these spill reports. As such, these spills are not considered a hazard that could affect the health and safety of occupants or conflict with the

		intended utilization of the Subject Property. The Subject Property is not listed in the Environmental Site Remediation or Bulk Storage Databases. **<u>Surrounding Properties</u>** **EPA Records:** There are 12 EPA-permitted hazardous waste, air emissions, and water discharger facilities located within 3,000 feet of the Subject Property. Of the 12 facilities, 11 are located across Rondout Creek or have no violations reported at the facility. Facilities with no permit violations are not considered a hazard because the facilities are in compliance with permit conditions that are enforced and meet standards that protect public health and the environment by preventing releases to the environment. As such, these 11 facilities are not considered a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property. One facility with violations and in non-compliance with permit conditions is identified as the **Rosendale WWT Facility**. This facility was reviewed in detail in the HUD Environmental Standards Review included in **Attachment 5**. The facility is determined to NOT pose a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property because hazardous substances have not been released from the facility. **NYSDEC Records:** A review of the NYSDEC Spill Incidents, Bulk Storage and Environmental Site Remediation Databases resulted in the identification of: 29 spills located on properties within 1,000 feet of the Subject Property, seven bulk storage sites within 3,000 feet of the Subject Property, and two Environmental Remediation sites within 3,000 feet of the Subject Property. Of the 29 spills identified within 1,000 feet of the Subject Property, 28 have been closed by the NYSDEC. A spill closure by the NYSDEC indicates that the records and data submitted for the spill demonstrated that the necessary cleanup and removal actions have been completed and no further remedial actions are necessary under

		these spill reports. As such, these 28 spills are not considered a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property. One spill has not yet been closed by the NYSDEC and is described briefly below. **Spill report #0107420** occurred at 1146 NYS Route 32 in October 2001. The spill site is located directly across NYS Route 32, approximately 365 feet east of the proposed project work on the Subject Property. While this open spill does constitute a potential hazardous condition for sites located down-gradient, the Subject Property is located cross-gradient. As such, this site is not considered a hazard that could conflict with the intended utilization of the Subject Property. Seven Bulk Storage sites were identified within the NYSDEC Bulk Storage Database. These seven Bulk Storage sites including any associated spills are reviewed in detail in the HUD Environmental Standards Review in **Attachment 5**. The registered tanks are permitted and regulated by NYSDEC which requires leak detection, containment and monitoring. Any site that has registered tanks and no reported or closed spills is not considered a hazard to the Subject Property. These Bulk Storage sites are not anticipated to be a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property. Two Environmental Remediation sites were identified within 3,000 feet of the Subject Property and are briefly discussed below: **1083 Route 32 (356031)** is a State Superfund site located approximately 1,160 feet south of the Subject Property. Primary contaminants of concern at the site include volatile organic compounds (VOCs), specifically tetra-chloroethene (PCE), cis-1,2 dichloroethene (DCE) and vinyl chloride. This contamination has been attributed to the nearby **Rosendale Cleaners site (ID No. 356050)**. The Rosendale Cleaners site is also a State Superfund site located adjacent to the 1083 Route 32 site, approximately 1,100 feet south of the Subject

		Property. These sites are not considered a hazard to the Subject Property due to their distance from the Subject Property and location across Rondout Creek, which acts as a hydraulic barrier. Additionally, the proposed project consists of installation of stormwater mitigation systems and a pedestrian bridge, and no occupied structures are proposed. **<u>In Summary:</u>** Based on a review of available environmental records for the Subject Property and surrounding area, the Subject Property is unlikely to contain hazardous materials, contamination, toxic chemicals and gases, or radioactive substances, which would constitute a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property. The proposed project consists of installation of stormwater mitigation systems and a pedestrian bridge, and no occupied structures are proposed. The pedestrian bridge will be used for recreational activities. Therefore, a Phase I Environmental Site Assessment (ESA) or Phase II Investigation is not warranted. Maps, NYSDEC reports, and EPA reports are provided in **Attachment 5**.
Endangered Species Endangered Species Act of 1973, particularly section 7; 50 CFR Part 402	Yes ☒ No ☐	A formal request was submitted to the NYSDEC Natural Heritage Program (NHP) for records of threatened or endangered species at the proposed project site. On March 24, 2017, a response was received from the NHP indicating their database contained records of rare or state-listed animals or plants, or significant natural communities at or within the immediate vicinity of the proposed project site. These records indicated the endangered Indiana Bat and threatened Northern Long-eared Bat have been documented about 0.5 mile from the proposed project site, with individuals potentially travelling 2.5 miles or more from documented locations. Also, the NHP response indicated that a high quality occurrence of the rare community type of Limestone Woodland is present in the greater Rosendale woods, located west of the proposed project site. However, Limestone Woodlands are not present at the proposed project site. NHP documentation is included in **Attachment 6**. A follow up jurisdictional review letter from NYSDEC received on April 10, 2017 further specified that

		the project area is within 2.5 miles of multiple hibernacula of both bat species, the closest of which is approximately 0.70 mile from the project location (See **Attachment 6**). The USFWS lists the threatened Northern Long-eared Bat (NLEB) (*Myotis septentrionalis*), the endangered Indiana bat *(Myotis sodalis)*, the threatened Bog Turtle *(Clemmys muhlenbergii)*, and migratory birds of concern as species with the potential to occur within the vicinity of the proposed project site. The IPaC Resource List indicates that there are 19 species of migratory birds protected by the MBTA and BGEPA that could potentially be affected by the proposed project, including the bald eagle (*Haliaeetus leucocephalus*) (**Attachment 6**). However, there are no known breeding bald eagles within the vicinity of the proposed project site; therefore, no adverse impacts to breeding bald eagles are expected to occur as a result of the proposed project. There is no habitat for the Bog Turtle in the proposed project area and migratory birds are expected to temporarily leave the area during construction due to noise and disturbance. Therefore, the proposed project is likely to have no effect on the Bog Turtle and migratory birds of concern. The USFWS concurred with this no effect determination and recommended that if bald eagles are found within the proposed project area, then GOSR and the Town of Rosendale should follow the Bald Eagle Management Guidelines on the USFWS website (**Attachment 6**). As noted by the NHP and USFWS, the main impact of concern for the listed bat species is the removal of potential swarming and/or staging habitat and roost trees. Therefore, GOSR performed a Phase I Summer Habitat Assessment to evaluate the 14 trees that need to be removed for project construction. During the Summer Habitat field inspection, it was confirmed that the proposed project is taking place entirely within a residential area without forest cover. All trees proposed for removal are live without noticeable exfoliating bark. Therefore, due to the lack of contiguous forest within this area of residential development, there is little chance that Northern Long-eared or Indiana Bats will be roosting or foraging in the

		area. Tree removal is anticipated to occur during the active season but outside of the June to July pup season. The USFWS consultation includes pictures and locations of the trees to be removed in **Attachment 6**. GOSR will arrange a visual emergence survey to be conducted at each tree the evening before tree cutting to determine the presence or absence of the listed bat species (**Attachment 6**). If no listed bat species are observed, then tree cutting will be completed the following day. If either listed bat species is observed, then GOSR through consultation and coordination with the USFWS will identify mitigation actions to alleviate any potential adverse effects to the observed bat specie(s). GOSR has determined that the tree removal may affect, but is not likely to adversely affect the listed bat species. The USFWS concurred with this determination based on the project location (no known nearby roosts), minimal amount of tree removal, and incorporation of a visual survey (**Attachment 6**).
Explosive and Flammable Hazards 24 CFR Part 51 Subpart C	Yes No ☐ ☒	Not applicable. The proposed project does not involve construction, development, conversion, or rehabilitation that will increase residential densities. The proposed project also does not introduce any storage, handling or processing of hazardous materials outside of the short-term use of construction equipment. Therefore, no further review is required.
Farmlands Protection Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR Part 658	Yes No ☐ ☒	Not applicable. The proposed project site is not located within an Agricultural District (**Attachment 7**). According to the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Farmland Classification Map (**Attachment 7**), the Subject Property contains approximately 39.3% prime farmland and 30.1% prime farmland, if drained. The Subject Property, as shown demarcated in **Attachment 1**, is a total of approximately 26.3 acres. However, the proposed project site locations consist of only approximately 2.29 acres that will be physically disturbed. The proposed project site is currently occupied by residential and commercial structures. The proposed project involves installation of stormwater mitigation systems and a pedestrian bridge, and does not involve the

		conversion of farmland to non-agricultural use or new development. Therefore, the proposed project would not violate the Farmland Protection Policy Act. Thus, no further review is required. http://www.agriculture.ny.gov/ap/agservices/agricultural-districts.html
Floodplain Management Executive Order 11988, particularly section 2(a); 24 CFR Part 55	Yes No ☐ ☒	The proposed project is not located within a FEMA designated flood zone as documented in **Attachment 4**. Therefore, a formal floodplain review process is not required for compliance with Executive Order 11988 Floodplain Management. https://msc.fema.gov/portal
Historic Preservation National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR Part 800; Tribal notification for new ground disturbance.	Yes No ☐ ☒	On March 16, 2017, the New York State Historic Preservation Office (SHPO) reviewed the Proposed Project and determined that there will be No Historic Properties Affected by the proposed undertaking (**Attachment 8**). On March 20, 2017, GOSR sent consultations letters to the Tribal Historic Preservation Offices (THPO) of the following Tribes, Communities and Nations: Delaware Nation Delaware Tribe of Indians Mohawk Nation St. Regis Mohawk Tribe Stockbridge-Munsee Community Band of Mohicans The Delaware Nation THPO responded that the proposed project does not endanger *known* cultural or religious sites of interest according to their files. The Delaware Tribe THPO responded with the information that there are no culturally significant areas located within the proposed project area and the Tribe has no objection to the proposed project. Additionally, the Stockbridge-Munsee Community Band of Mohicans THPO responded that the Community does not have significant cultural resource concerns with the proposed project. The THPO consultations and responses have been included in **Attachment 8**. No response was received from the Mohawk Nation or St. Regis Mohawk Tribe. Any

		subsequent responses received from the THPOs will be incorporated into the requirements of this environmental review and appended to **Attachment 8**. In the event any unanticipated discoveries of human remains and/ or cultural resources including, but not limited to, funerary objects, sacred objects, and objects of cultural patrimony are made during execution of the proposed project, work shall be halted immediately and the SHPO and the THPOs of the Delaware Nation, Delaware Tribe of Indians, Mohawk Nation, St. Regis Mohawk Tribe, and Stockbridge-Munsee Community Band of Mohicans shall be consulted before work resumes.
Noise Abatement and Control Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR Part 51 Subpart B	Yes No ☐ ☒	The proposed project use is not a noise-sensitive use. The project activities are not expected to generate excessive noise during the short-term construction work and will adhere to local noise control standards. The project activities will be completed in accordance with all applicable federal, state and local regulations, and permit requirements and conditions. Therefore, the proposed project is not expected to generate any significant adverse noise impacts.
Sole Source Aquifers Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR Part 149	Yes No ☐ ☒	Not applicable. The proposed project does not occur within the surficial bounds of a designated sole source aquifer. See the EPA designated sole source aquifers map in New York State included in **Attachment 9**. http://www.dec.ny.gov/docs/water_pdf/ssa.pdf
Wetlands Protection Executive Order 11990, particularly sections 2 and 5	Yes No ☐ ☒	Based on the USFWS National Wetlands Inventory (NWI) map and NYSDEC Environmental Resource Mapper, there is a federally designated riverine waterway (R2UBH) running through and on the edges of the Washington Park neighborhood. However, there are no mapped federal or state wetlands located in the proposed project site locations as shown on the wetland maps included in **Attachment 3**. Because no proposed project activities are occurring in a wetland, a formal wetland management review process is not required for compliance with Executive Order 11990 Protection of Wetlands, as documented in **Attachment 4**.

		NYSDEC Environmental Resource Mapper http://www.dec.ny.gov/gis/erm/ USFWS National Wetland Inventory - V2 https://www.fws.gov/wetlands/Data/Mapper.html
Wild and Scenic Rivers Wild and Scenic Rivers Act of 1968, particularly section 7(b) and (c)	Yes No ☐ ☒	The proposed project is not located near any wild, scenic or recreational rivers, as designated by the U.S. Department of the Interior and NYSDEC or included in the National Wild and Scenic Rivers System (**Attachment 3**). Thus, there is compliance with this section. http://www.rivers.gov/new-york.php http://www.dec.ny.gov/permits/32739.html https://www.nps.gov/ncrc/programs/rtca/nri/states/ny.html
ENVIRONMENTAL JUSTICE		
Environmental Justice Executive Order 12898	Yes No ☐ ☒	The proposed project site is not located in an area defined by the NYSDEC as a potential environmental justice area, see map included in **Attachment 10**. Therefore, the proposed project does not contribute to, or promote, environmental injustice. http://www.dec.ny.gov/public/899.html

Environmental Assessment Factors [24 CFR 58.40; Ref. 40 CFR 1508.8 &1508.27] Recorded below is the qualitative and quantitative significance of the effects of the proposal on the character, features and resources of the project area. Each factor has been evaluated and documented, as appropriate and in proportion to its relevance to the proposed action. Verifiable source documentation has been provided and described in support of each determination, as appropriate. Credible, traceable and supportive source documentation for each authority has been provided. Where applicable, the necessary reviews or consultations have been completed and applicable permits of approvals have been obtained or noted. Citations, dates/names/titles of contacts, and page references are clear. Additional documentation is attached, as appropriate. **All conditions, attenuation or mitigation measures have been clearly identified.**

Impact Codes: Use an impact code from the following list to make the determination of impact for each factor.
(1) Minor beneficial impact
(2) No impact anticipated
(3) Minor Adverse Impact – May require mitigation

(4) Significant or potentially significant impact requiring avoidance or modification which may require an Environmental Impact Statement

Environmental Assessment Factor	Impact Code	Impact Evaluation
LAND DEVELOPMENT		
Conformance with Plans / Compatible Land Use and Zoning / Scale and Urban Design	1	According to the Ulster County Municipal Zoning Map, the proposed project site is situated in areas zoned for R-2a Residence and B-2 Business. The proposed project involves the installation of stormwater mitigation systems and a pedestrian bridge for the Washington Park neighborhood in the Town of Rosendale (**Attachment 7**). The Washington Park neighborhood consists of 38 single-family residences and one commercial property and is located on the west side of NYS Route 32, which is the main north/south route through the Town of Rosendale. The neighborhood is bounded on the north by a mountain and on the west by an unnamed, steeply-inclined north-south running mountain ridge that extends from the north side of Rosendale's Main Street and roughly parallels the course of NYS Route 32 approximately 1.1 miles to the ridge's intersection with Breezy Hill Road. The proposed project site is located in this predominantly residential area, with business-use zoned parcels located along NYS Route 32. The neighborhood is served by a mixture of stormwater infrastructure, including a series of ditches that run along the base of the aforementioned ridgeline, 4" and 6" piping, and roadside ditches. The proposed project is in accordance with the local Town of Rosendale zoning for this site as the proposed actions support the existing land-use patterns and aim to alleviate local flooding and provide a pedestrian footbridge for residents. According to the *Town of Rosendale Comprehensive Plan*, Rosendale is "an area with much land that is constrained either by slope, flood plain or wetland." The proposed project will not alter the existing land use, cause changes to neighborhood characteristics of the local area, or alter residential or commercial density. Residential and commercial infrastructure in these neighborhoods will not be adversely affected. The proposed project will enhance the ability for the Town of Rosendale emergency services to respond during and after a disaster by allowing access to the residential area in and around the area that would otherwise be blocked off due to flood waters. Additionally, as noted in the New York Rising Community Reconstruction (NYRCR) Plan for Ulster County (March 2014), the proposed project will minimize localized flooding during future storm events. Ulster County, *NY Rising Community Reconstruction Program Plan*, March 2014 https://stormrecovery.ny.gov/sites/default/files/crp/community/d

		ocuments/ulstercounty_nyrcr_plan.pdf Ulster County, *All Hazards Mitigation Plan* (Approved February 2009) http://ulstercountyny.gov/emergency-services/hazard-mitigation Broome County, *Comprehensive Plan* http://ulstercountyny.gov/planning/land-use Broome County, *Comprehensive Plan – Housing* http://ulstercountyny.gov/planning/housing/housing-strategies-plan Town of Rosendale, *Comprehensive Plan* https://ulstercountyny.gov/sites/default/files/documents/rosendale-comp_plan.pdf Town of Rosendale, *Zoning*, February 8, 1995 http://ecode360.com/6614028
Soil Suitability/ Slope/ Erosion/ Drainage/ Storm Water Runoff	1	Per the USGS Topographic Map, the proposed project site is located in an area of little to no slope (**Attachment 1**). The proposed project activities will not significantly alter the slope of the site (**Attachment 2**). USDA NRCS maps provide information on soils types and properties that influence development of building sites. According to the USDA NRCS soils map data for "Shallow Soil Excavation" and Soil classification, the proposed project site contains steep Farmington Rock outcrop complexes and various silt loam soils, with slopes of 0-3% (**Attachment 7**). The rock outcrop complex was not rated, while the silt loam lands were rated as very to somewhat limited on the "Shallow Excavations" soils map for the proposed project area. The proposed stormwater mitigation systems installation is primarily located within the "somewhat limited" soil rating. According to the NRCS, "somewhat limited" indicates that the soil has features that are moderately favorable for the specified use while "very limited" indicates that the soil has one or more features that are unfavorable for the specified use. As such, the proposed project conforms to the soil ratings assigned by the USDA. As such, the soils at the proposed project site will not limit the construction activities and designs. The proposed project includes the installation of stormwater sewer systems, culvert pipes, drainage ditches and swales, a manhole, and catch basins for stormwater management with drainage for these areas connecting to existing stormwater infrastructure, and the construction of a pedestrian footbridge. No potential undesirable impacts are anticipated and the area should be improved in terms of its landscape and stability upon completion of the proposed project.

		The proposed project will be implemented in accordance with all applicable federal, state and local permit requirements and conditions, including a NYSDEC State Pollutant Discharge Elimination System (SPDES) General Permit and Town of Rosendale approval of plans for work on Town roads. Thus, no potential impacts from the proposed project are anticipated.
Hazards and Nuisances including Site Safety and Noise	2	Based on a review of available environmental records for the Subject Property and surrounding area, the Subject Property is unlikely to contain hazardous materials, contamination, toxic chemicals and gases, or radioactive substances, which would constitute a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property. The proposed project consists of installation of stormwater mitigation systems and a pedestrian bridge, and no occupied structures are proposed. The pedestrian bridge will be used for recreational activities. Maps, NYSDEC reports, and EPA reports are provided in **Attachment 5**. The proposed project use is not a noise-sensitive use. The proposed activities are not expected to generate excessive noise during the short-term construction work and will adhere to local noise control standards. The project activities will be completed in accordance with all applicable federal, state and local regulations, and permit requirements and conditions. Therefore, the proposed project is not expected to generate any significant adverse noise impacts.
Energy Consumption	2	The proposed project involving installation of stormwater mitigation systems and a pedestrian bridge will not cause a demand or increase in long-term energy consumption.

Environmental Assessment Factor	Impact Code	Impact Evaluation
SOCIOECONOMIC		
Employment and Income Patterns	2	The proposed project will not adversely affect employment opportunities or income patterns nor impact traffic and potential customer access to residences and businesses in the area, either during construction or operation. Rather, the proposed project will decrease the vulnerability of the community by effectively conveying water during 50-year storm events and alleviating chronic flooding problems. Additionally, this will further protect the residents' public health and safety, safeguard infrastructure, and enhance emergency response operations during severe storm events. Ulster County, *NY Rising Community Reconstruction Program Plan*, March 2014 https://stormrecovery.ny.gov/sites/default/files/crp/community/

		documents/ulstercounty_nyrcr_plan.pdf
Demographic Character Changes, Displacement	2	The proposed project is not expected to cause any change in the demographic character of the area. The proposed project will not involve residential or commercial development activities. Also, the proposed project will not present the potential to cause the displacement of individuals or families, destroy jobs, local businesses or public community facilities, or disproportionately affect particular populations. Rather, the proposed project only involves the installation of stormwater mitigation systems and a pedestrian bridge in a primarily residential area of the Town of Rosendale.

Environmental Assessment Factor	Impact Code	Impact Evaluation
COMMUNITY FACILITIES AND SERVICES		
Educational and Cultural Facilities	2	The proposed project will not introduce any new populations that would increase the student population of the area. As such, the proposed project will not have an impact on educational or cultural facilities.
Commercial Facilities	2	The proposed project will not introduce any new commercial development that would require additional retail services or other commercial facilities.
Health Care and Social Services	1	The proposed project will not introduce any new development that would require the availability of additional routine or emergency health services. Rather, the proposed project is likely to help provide better access to health services by the local community during and after severe storm events.
Solid Waste Disposal / Recycling	2	The proposed project will not introduce new development that would generate solid wastes on an ongoing basis. All construction wastes will be appropriately disposed of according to the type of waste generated and construction waste management practices in an appropriate, legally compliant receiving facility.
Waste Water / Sanitary Sewers	2	The proposed project will not introduce any new development that would generate waste water. Mitigative measures Best Management Practices (BMPs) will be utilized during construction to prevent soil and/ or debris from being washed off-site. No additional waste water will be generated during construction.
Water Supply	2	The proposed project will not increase demand for water. As such, the proposed project will not have an impact on local water supplies.

Public Safety - Police, Fire and Emergency Medical	1	The proposed project will not generate new demand for police, fire, or emergency medical services. The proposed project only involves the installation of stormwater mitigation systems and a pedestrian bridge. The proposed project will decrease the vulnerability of the community by effectively conveying water during 50-year storm events and alleviating chronic flooding problems. Thus, the proposed project will likely improve the accessibility and travel times for emergency services and emergency response operations during and after severe storm events.
Parks, Open Space and Recreation	1	The proposed project will not introduce new development that would generate demand for open space resources or impede open space access. Instead, the proposed project is likely to reduce flooding in the area and the vulnerability of assets by increasing the resiliency of the community during future flooding events. Thus, the proposed project will not have an adverse effect on existing open space resources or impede open space access. Rather, the construction of a pedestrian bridge will improve the area for accessibility and recreational activities.
Transportation and Accessibility	1	Besides limited trips generated by construction vehicles during a short window of construction, the proposed project will not introduce new development that generates continuing demand for transportation access or transportation services. During Hurricane Irene and Tropical Storm Lee, most of the area residents were stranded until the floodwaters receded and stormwater damaged the neighborhood streets, shifted homes from their foundations, filled basements, and damaged undersized culverts. The construction of a pedestrian bridge will improve the area's accessibility for pedestrian traffic. Additionally, the proposed drainage improvements will protect the residents' public health and safety by improving transportation accessibility, safeguard infrastructure, and enhance emergency response operations during and after severe storm events.

Environmental Assessment Factor	Impact Code	Impact Evaluation
NATURAL FEATURES		
Unique Natural Features, Water Resources	2	According to NYSDEC, there are no unique geological features located on or adjacent to the proposed project. According to NYSDEC's Environmental Resource Map, the proposed project is not located in or adjacent to "Significant Natural Communities." This data layer identifies locations within ½ mile of an identified significant natural community (**Attachment 3**).

		NYSDEC *Unique Geologic Features* http://www.dec.ny.gov/permits/53826.html Based on the USFWS NWI map and NYSDEC Environmental Resource Mapper, there is a federally designated riverine waterway (R2UBH) running through and on the edges of the Washington Park neighborhood. However, there are no mapped federal or state wetlands located in the proposed project site as shown on the wetland maps included in **Attachment 3**. Since no proposed project activities are occurring in a wetland, a formal wetland management review process is not required for compliance with Executive Order 11990 Protection of Wetlands, as documented in **Attachment 3**. The proposed project will not interfere with the restoration of a vital ecosystem and preservation of its natural heritage. The proposed project will be implemented in accordance with all applicable federal, state and local regulations and permit requirements and conditions in order to ensure the preservation of water quality. Thus, no potential impacts from the proposed project are anticipated. The proposed project will not introduce new demand for groundwater or surface water, nor would the proposed project introduce septic flows that may affect groundwater. The proposed project will not significantly increase impervious surfaces. Rather, the proposed project will introduce stormwater runoff controls and drainage improvements that will effectively convey water during 50-year storm events and alleviate chronic flooding problems. Therefore, unique natural features or water resources are not expected to be permanently affected by this proposed project.
Vegetation, Wildlife	2	The proposed project will involve the installation of stormwater mitigation systems and a pedestrian bridge. Any disturbed areas will be restored to pre-existing and/ or improved conditions after construction is complete. For a detailed vegetation and wildlife analysis, see the Endangered Species (Endangered Species Act of 1973, particularly section 7; 50 CFR Part 402) section above.
Other Factors	1	This project will ensure that emergency services and residents can carry out a post-disaster survival and recovery plan by providing better access to the area during and after a major storm event. Therefore, the proposed project activities are needed to greatly reduce flood risk by increasing the stormwater drainage capabilities of the existing stormwater sewer system. The proposed project is intended to sustain the area and build resiliency of this area during future flooding

		events while not detracting from visual quality. Additionally, this will further protect the residents' public health and safety, safeguard infrastructure, and enhance emergency response operations during and after severe storm events.

Attachments:

- **Attachment 1:** Location Maps
  - Aerial Photograph
  - Street Map
  - Topographic Map
  - Airport Hazards Map
- **Attachment 2:** Construction Plans and Associated Studies
  - Final Construction Plans
  - Mitigation Easement Plans
  - Stormwater Management Pollution Prevention Plan for Construction-Related Activities
  - Design Report with H&H Study
- **Attachment 3:** Wetlands, Coastal and River Maps
  - USFWS Wild and Scenic Rivers Map
  - NYSDEC Environmental Resource Map
  - USFWS NWI Map
  - NYSDEC Coastal Boundary and Tidal Wetland Map
- **Attachment 4:** Floodplain Management (EO 11988) and Protection of Wetlands (EO 11990) Determination and FEMA Firmette
- **Attachment 5:** HUD Environmental Standards Review Report
- **Attachment 6:** Section 7 Documents
  - NHP Documentation
  - NYSDEC NHP Bat Review Request
  - Phase I Bat Summer Habitat Assessment
  - USFWS Consultation Letters
- **Attachment 7:** Agricultural, NRCS and Zoning Maps
  - New York State Agricultural Districts Map
  - USDA NRCS Soil Resource Map
  - USDA NRCS Building Site Development
  - USDA NRCS Land Classification Map
  - Ulster County Zoning Map
- **Attachment 8:** SHPO and THPO Documentation
  - SHPO Response
  - THPO Responses
    - Delaware Nation
    - Delaware Tribe
    - Stockbridge-Munsee Community Band of Mohicans
  - THPO letter
    - Affidavit of Mailing
    - Delaware Nation
    - Delaware Tribe of Indians
    - Mohawk Nation
    - St. Regis Mohawk Tribe
    - Stockbridge-Munsee Community Band of Mohicans
- **Attachment 9:** EPA Sole Source Aquifer Map

- **Attachment 10:** Potential Environmental Justice Areas Map
- **Attachment 11:** Permit Documentation (To be added upon receipt)
    - NYSDEC SPDES General Permit
- **Attachment 12:** SEQR Documentation

List of Sources, Agencies and Persons Consulted [40 CFR 1508.9(b)]**:**

- Federal Aviation Administration (FAA)
- Federal Emergency Management Agency (FEMA)
- United States Environmental Protection Agency (USEPA)
- United States Fish and Wildlife Service (USFWS)
- U.S. Department of Agriculture (USDA)
- Natural Resources Conservation Service (NRCS)
- United States Department of Interior (USDOI)
- National Parks Service (NPS)
- United States Geological Survey (USGS)
- New York State Department of Environmental Conservation (NYSDEC)
- Natural Heritage Program (NHP)
- New York State Department of State (NYSDOS)
- Nassau County Department of Health and the Nassau County Fire Commissioner
- New York State Historic Preservation Office (SHPO)
- New York State Tribal Historic Preservation Office (THPO)
    - Delaware Nation
    - Delaware Tribe of Indians
    - Mohawk Nation
    - St. Regis Mohawk Tribe
    - Stockbridge-Munsee Community Band of Mohicans
- Ulster County, *NY Rising Community Reconstruction Program Plan*, March 2014
- https://stormrecovery.ny.gov/sites/default/files/crp/community/documents/ulstercounty_nyrcr_plan.pdf
- NYRCR Program Washington Park Stormwater Mitigation Project Application for Funding (December 2015)
- Ulster County, *All Hazards Mitigation Plan* (Approved February 2009)
- http://ulstercountyny.gov/emergency-services/hazard-mitigation
- Broome County, *Comprehensive Plan*.
- http://ulstercountyny.gov/planning/land-use
- Broome County, *Comprehensive Plan - Housing*. http://ulstercountyny.gov/planning/housing/housing-strategies-plan
- Town of Rosendale, *Comprehensive Plan*.
- https://ulstercountyny.gov/sites/default/files/documents/rosendale-comp_plan.pdf
- Town of Rosendale, *Zoning*, February 8, 1995.
- http://ecode360.com/6614028
- Final Design for Agency Review Site Plans developed by Brinnier And Larios, dated February 2017.

List of Permits Obtained or Required:

- NYSDEC State Pollutant Discharge Elimination System (SPDES) General Permit
- Town of Rosendale approval of plans for work on Town roads, equivalent of obtaining a Town Road Work Permit temporary (17) and permanent (17) easements from private property owners

Public Outreach [24 CFR 50.23 & 58.43]**:**

- November 10, 2015 – Town of Rosendale Special Town Board Meeting
- November 18, 2015 – Town of Rosendale Town Board Meeting
- May 26, 2017 – Publication of a Combined Notice of Finding of No Significant Impact (*FONSI*) and Notice of Intent to Request Release of Funds (*NOI-RROF*).

Cumulative Impact Analysis [24 CFR 58.32]**:**

The proposed project was evaluated according to the final design site plans included in **Attachment 2**. There are no other known future projects in the area of the proposed project that would create environmental or social impacts in the community. The proposed project fits within the surrounding area per the local zoning regulations and comprehensive plan's land use goals.

Alternatives [24 CFR 58.40(e); 40 CFR 1508.9]**:**

The primary alternative for the proposed project is the "no action" alternative. This alternative means that there would be no work undertaken to alleviate the flood problem or mitigate the future flooding. This would leave the surrounding community vulnerable to future flood damage. The "no action" alternative would provide no protection to the residential neighborhoods and greater community from future flood events, as mitigation would be compromised due to lack of financial support. Thus, the "no action" alternative is not feasible in relation to the desired objective of creating area resiliency to future flooding events.

Summary of Findings and Conclusions:

The preceding Statutory Checklist and Environmental Assessment Checklist, and the discussion below, document that the proposed work will comply with regulations in 24 CFR part 58 and that there are no direct or cumulative adverse environmental impacts anticipated as a result of the proposed project.

Mitigation Measures and Conditions [40 CFR 1505.2(c)]:

Summarize below all mitigation measures adopted by the Responsible Entity to reduce, avoid, or eliminate adverse environmental impacts and to avoid non-compliance or non-conformance with the above-listed authorities and factors. These measures/conditions must be incorporated into project contracts, development agreements, and other relevant documents. The staff responsible for implementing and monitoring mitigation measures should be clearly identified in the mitigation plan.

Any change to the approved scope of work will require re-evaluation by the Certifying Officer for compliance with NEPA and other laws and Executive Orders.

This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal state and local laws. Failure to obtain all appropriate federal, state, and local environmental permits and clearances may jeopardize federal funding.

Law, Authority, or Factor	**Mitigation Measure**
Endangered Species Endangered Species Act of 1973, particularly section 7; 50 CFR Part 402	GOSR will ensure a visual emergence survey will be conducted at each tree the evening before tree cutting to determine the presence or absence of the listed bat species (**Attachment 6**). If no listed bat species are observed, then tree cutting will be completed the following day. If either listed bat species is observed, then GOSR with consultation and coordination through the USFWS will identify mitigation

	actions to alleviate any potential adverse effects to the observed bat specie(s). GOSR has determined that the tree removal may affect, but is not likely to adversely affect the listed bat species. The USFWS concurred with this determination based on the project location (no known nearby roosts), minimal amount of tree removal, and incorporation of a visual survey (**Attachment 6**).

Determination:

☒ **Finding of No Significant Impact** [24 CFR 58.40(g)(1); 40 CFR 1508.27]
The project will not result in a significant impact on the quality of the human environment.

☐ **Finding of Significant Impact** [24 CFR 58.40(g)(2); 40 CFR 1508.27]
The project may significantly affect the quality of the human environment.

Preparer Signature: Andrea Dievers Date: 5/26/17

Name/Title/Organization: Tectonic Engineering and Surveying Consultants, P.C.

Certifying Officer Signature: Lori A Shirley Date: 5/26/17

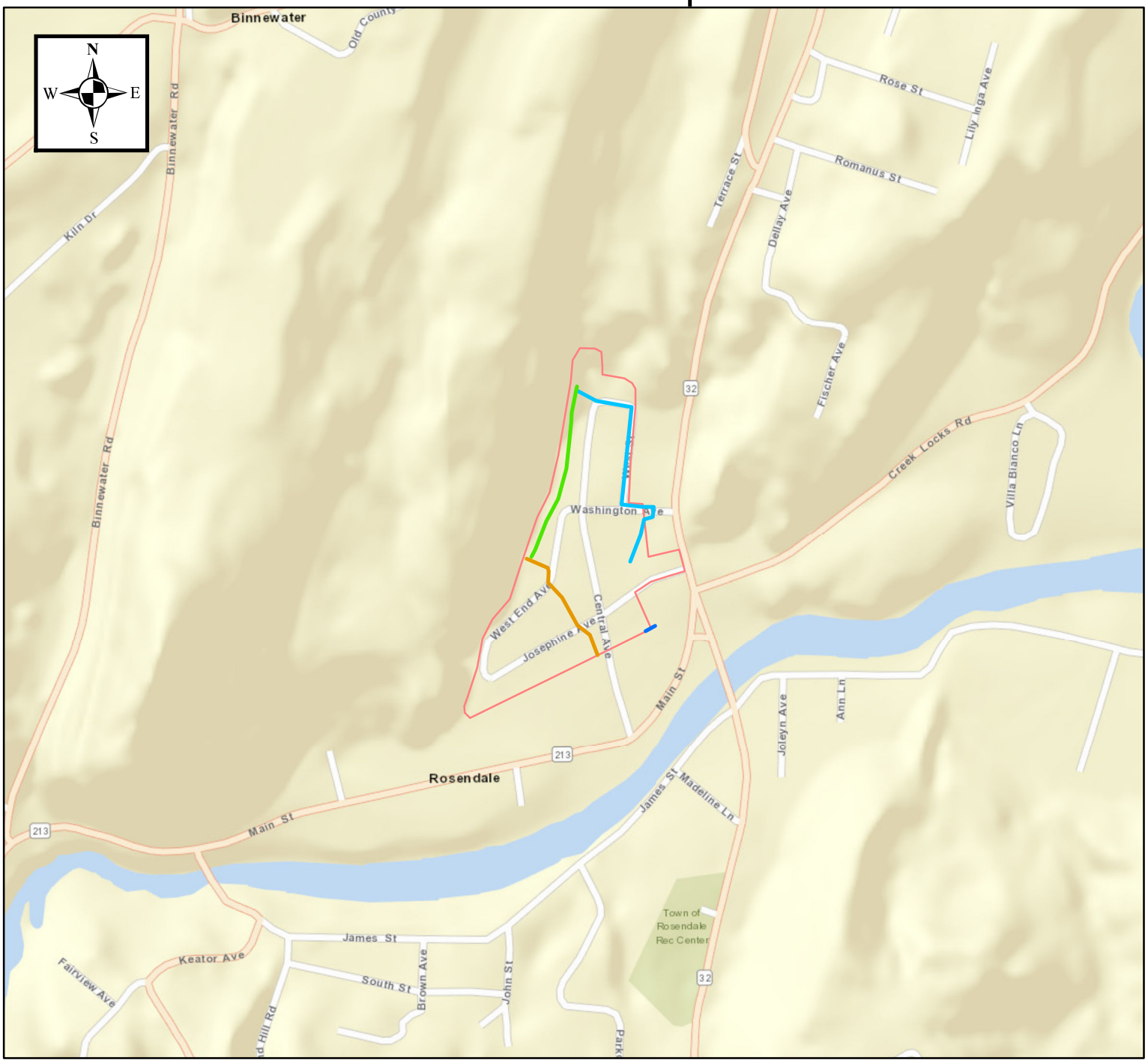
Name/Title: Lori A. Shirley, Certifying Officer, GOSR

This original, signed document and related supporting material must be retained on file by the Responsible Entity in an Environmental Review Record (ERR) for the activity/project (ref: 24 CFR Part 58.38) and in accordance with recordkeeping requirements for the HUD program(s).

Attachment 1

Street Map,
Topographic Map,
Aerial Photograph,
Airport Hazards Map,
& NFDC Airport SiteDocumentation

Location Map



TECTONIC

Practical Solutions, Exceptional Service

0 500 1,000 2,000 Feet

1:10,000

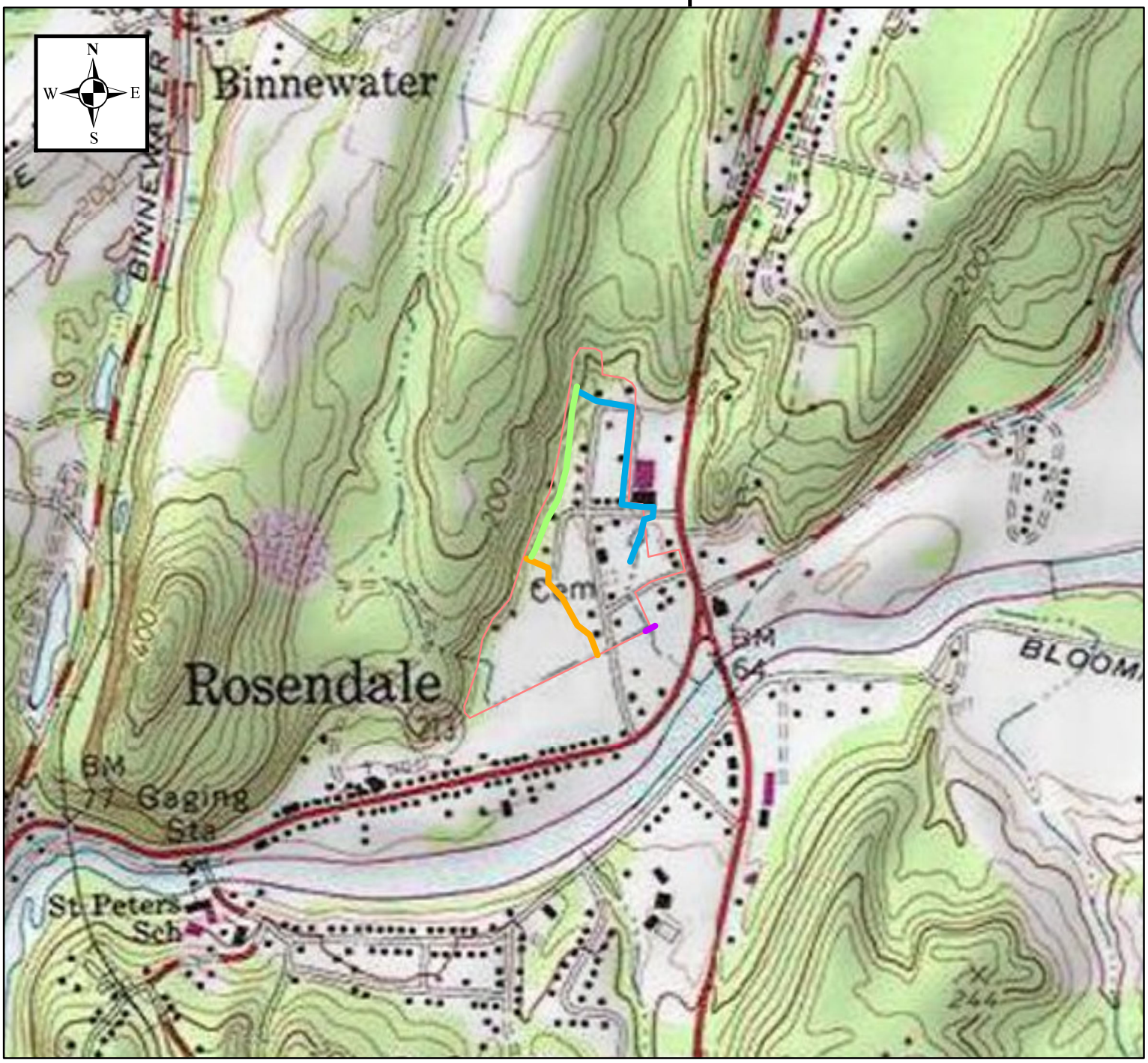
Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

Legend

Approximate Work Locations

- **Eastern Drainage System**
- **Mountain Swale**
- **Western Drainage System**
- **Pedestrian Bridge**
- **Washington Park (Approximate Boundary)**

Location Map



TECTONIC
Practical Solutions, Exceptional Service

0 500 1,000 2,000 Feet

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Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
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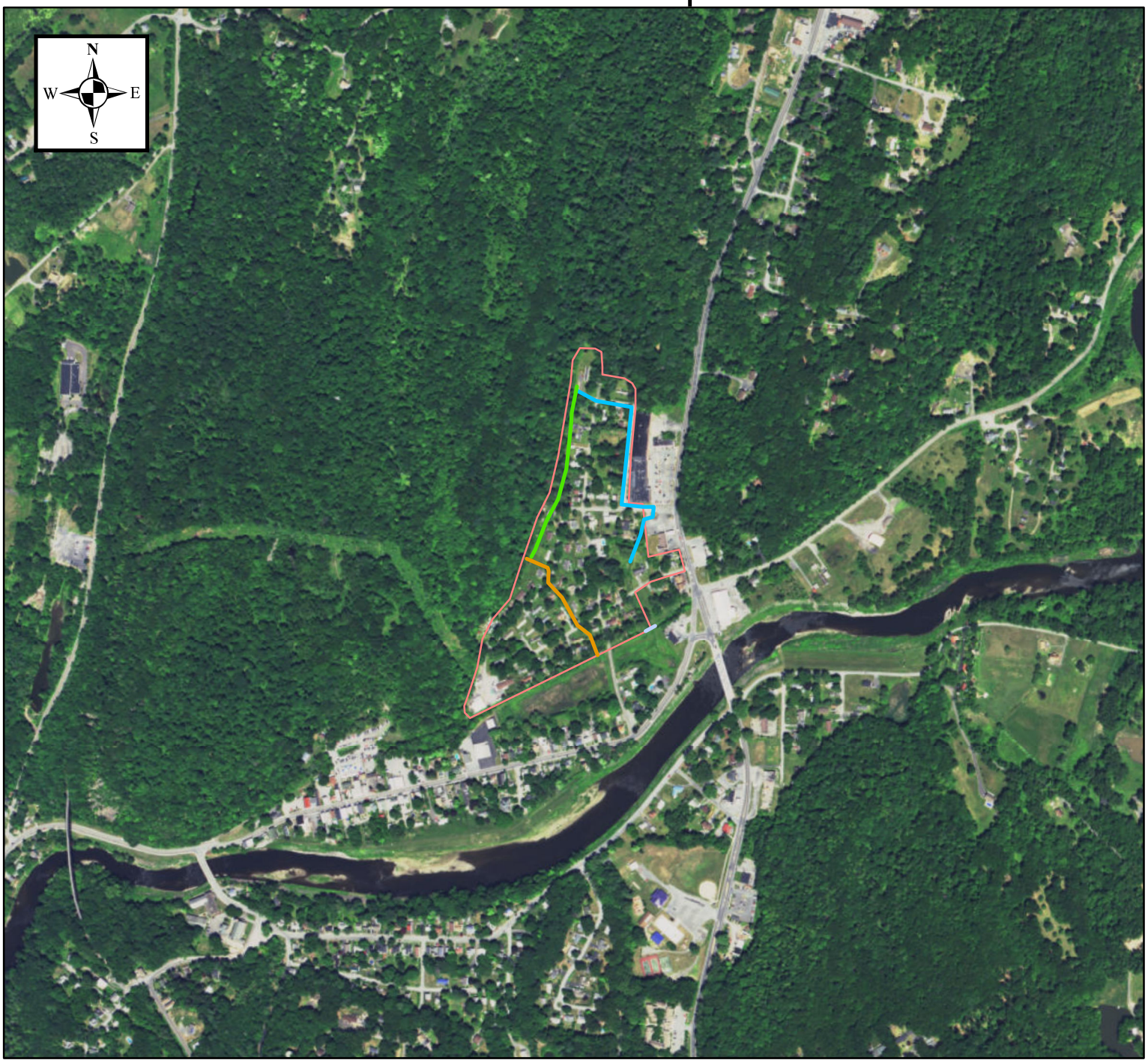
Location Map



TECTONIC
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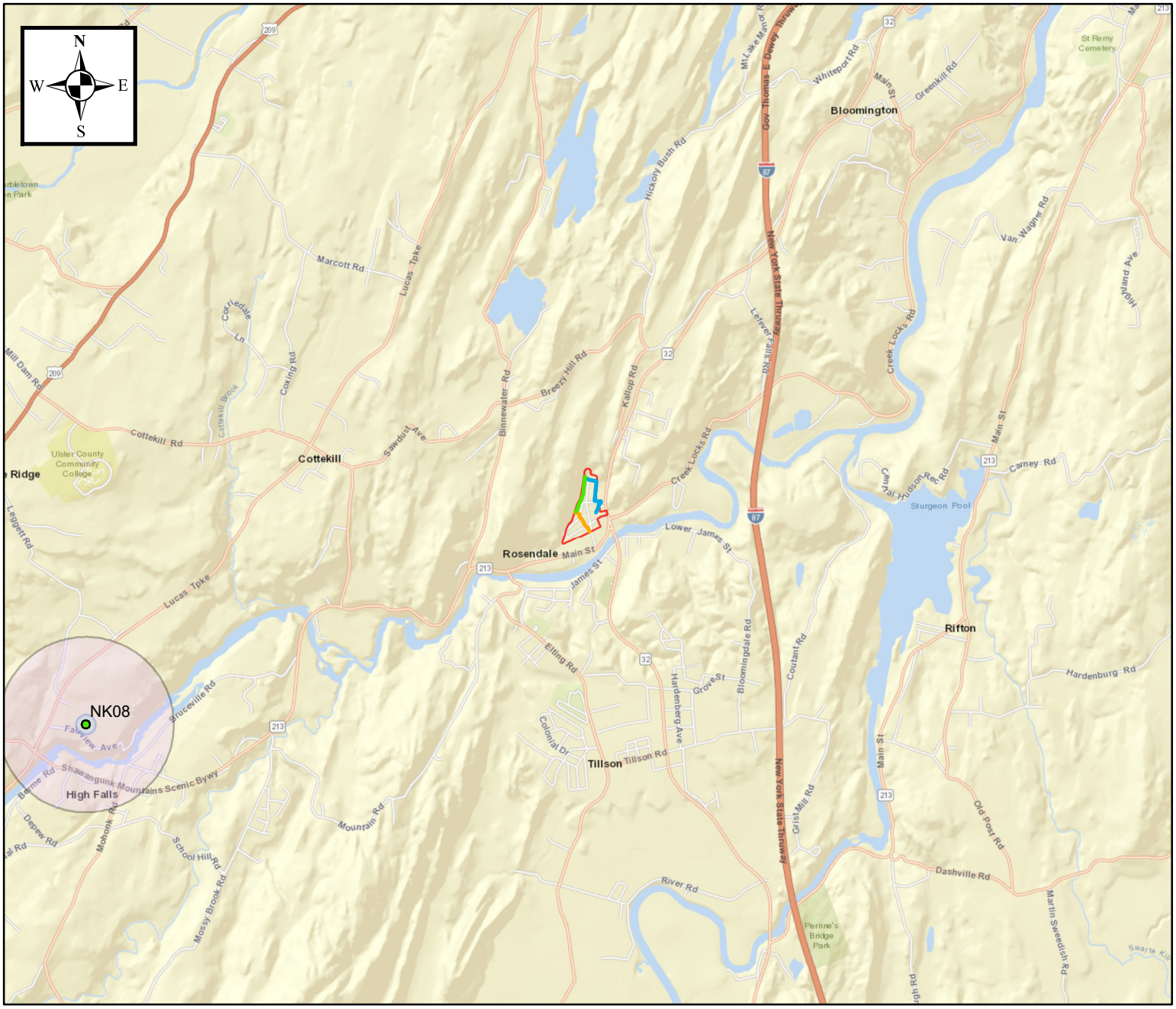
Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

Legend

Approximate Work Locations

- **Eastern Drainage System**
- **Mountain Swale**
- **Western Drainage System**
- **Pedestrian Bridge**
- **Washington Park (Approximate Boundary)**

Airport Hazards Map



TECTONIC
Practical Solutions, Exceptional Service

0 2,500 5,000 10,000 Feet

1:50,000

Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

Created: 3/3/2017
Source data: FAA facility data and
Airport Master Records and Reports data.

Note: This map identifies all documented airport and heliport facilities located within the shown area.

Legend

- Eastern Drainage System
- Mountain Swale
- Western Drainage System
- Washington Park (Approximate Boundary)
- Airport and Heliport Locations (Location ID)
- Heliport Protection Zone (280 ft)
- Civilian Runway Protection Zone (2500 ft)

Aeronautical Information Services - National Flight Data Center (NFDC)

The NFDC website has been consolidated with the FAA's **Aeronautical Information Services** website. Please bookmark the **new Aeronautical Data/NFDC website** location.

Data Effective: **03/02/2017 - 03/30/2017**

NK08

SHEELEY'S FARM

HIGH FALLS , NY - UNITED STATES

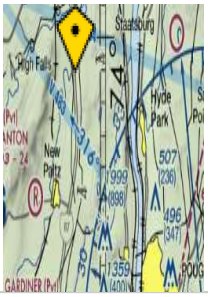
All Summary Operations Communications NAVAIDS Weather RWY 13/31

Heliports Charts Contacts Remarks METAR/TAF

Summary/Location

View active NOTAMS

Latitude/Longitude	41-49-54.89 N / 74-7-47.6 W
Elevation	260 FT
Variation	13 W 1985
From city	1 miles NW of HIGH FALLS, NY
ARTCC	ZBW
Section chart	NEW YORK
Time Zone	UTC-5(-4DT)



OPERATIONS

Airport Status	Operational
Facility use	Private use only
Control Tower	No air traffic control tower at airport
FSS	NEW YORK FSS (ISP) Toll Free: 1-800-WX-BRIEF • TELEPHONE-TWEB 516-727-7084.
Attendance	0700-1900
Wind Indicator	Yes
Segmented Circle	No
Landing Fee	No
Fuel	NONE
Int'l Operations	

COMMUNICATIONS

UNICOM:	None
CTAF:	None
ATIS:	None

NAVAIDS

NAVAIDS:

Type	ID	Name	Frequency	Hours	Distance	Bearing	Remarks
VOR/DME	IGN	KINGSTON	117.6 MHz	24 Hours	17.0 nm	306.1°	• OPERATIONAL RESTRICTED • VOR PORTION UNUSBL 045-050 BYD 35 NM BLO 4300; 070-140 BYD 30 NM BLO 3400.

FAN MARKER	SKU	STANWYCK		24 Hours	18.6 nm	348.2°	• OPERATIONAL VFR ONLY
NDB	SKU	STANWYCK	261 KHz	24 Hours	18.6 nm	348.2°	• OPERATIONAL VFR ONLY
VORTAC	SAX	SPARTA	115.7 MHz	24 Hours	49.4 nm	21.7°	• OPERATIONAL IFR • VOR UNUSABLE 075-085 DEG BLO 6,500 FT; 155-165 DEG.
VOT	ALB	ALBANY COUNTY	108.2 MHz	24 Hours	56.3 nm	194.1°	• OPERATIONAL RESTRICTED • VOT UNUSBL NORTH OF TWY "M".

WEATHER

ID	Type	Frequency	Phone	Distance	Remarks
POU	WX ASOS	126.75 MHz	845-462-0648	16.7 nm	
MGJ	WX ASOS	119.275 MHz	845-457-1486	20.1 nm	
MSV	WX AWOS-3	124.725 MHz	845-583-5056	30.9 nm	
1B1	WX AWOS-3	133.525 MHz	518-828-2577	33.3 nm	
DXR	WX ASOS	127.75 MHz	203-791-8227	40.1 nm	

RUNWAY 13/31

Dimensions	2000 ft. x 40 ft.
Surface Type	TURF
Surface Condition	
Treatment	
Runway Edge Lights	
PCN	
Single Wheel	
Double Wheel	
Double Tandem	
Dual Double Tandem	

Base End: 13

Runway End Identifier Lights	No

Reciprocal End: 31

Runway End Identifier Lights	No

HELIPORTS

None

CHARTS

Chart data valid from 0901Z 02/02/17 to 0901Z 03/02/17.

CONTACTS

OWNER

SUE SHEELEY
161 FAIRVIEW AVE.
HIGH FALLS, NY 12440
UNITED STATES
Phone: 914-687-9695

MANAGER

SUE SHEELEY
161 FAIRVIEW AVE.
HIGH FALLS, NY 12440
UNITED STATES
Phone: 914-687-9695

REMARKS

No remarks.

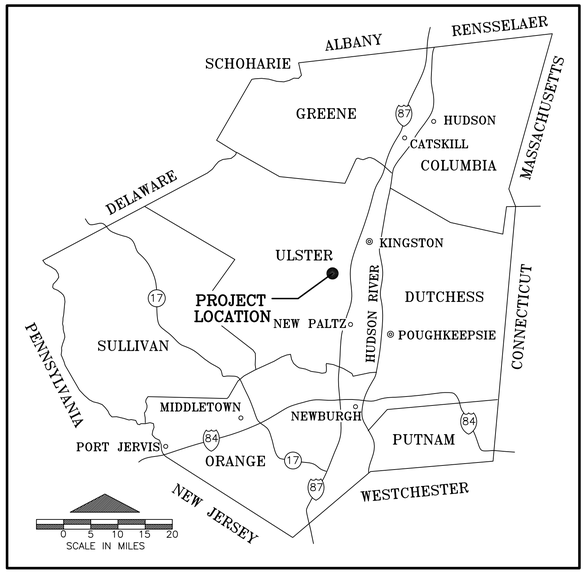
METAR/TAF

Currently no METAR data is avaliable for this airport

Currently no TAF data is avaliable for this airport

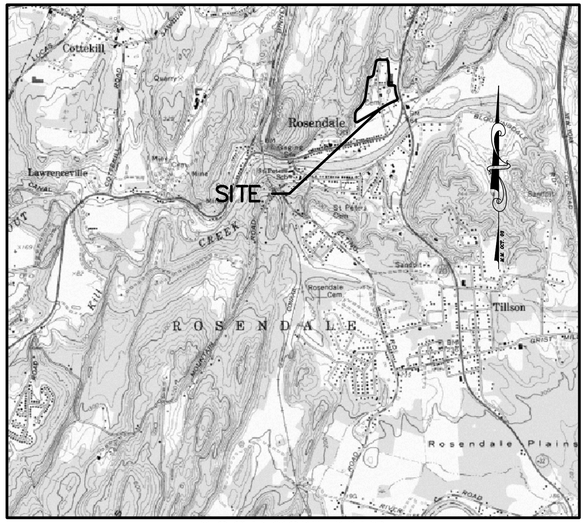
Attachment 2

Final Construction Plans,
Mitigation Easement Plans,
Stormwater Management Pollution Prevention Plan
for Construction-Related Activities,
& Design Report with H&H Study



GENERAL LOCATION MAP

AERIAL VIEW



LOCATION MAP
ROSENDALE QUADRANGLE
7.5' MINUTE USGS TOPOGRAPHIC MAP
SCALE: 1" = 2000'

CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION

NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNOR'S OFFICE OF STORM RECOVERY

TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

TOWN OFFICIALS

JEANNE L. WALSH, TOWN SUPERVISOR

TOWN COUNCIL
JOHN P. HUGHES
JENNIFER METZGER
CHRISTOPHER PRYLOPSKI
FRANK KLEPEIS
ROBERT S. GALLAGHER, HIGHWAY SUPERINTENDENT
MANDY CONSTABLE, TOWN CLERK

FEBRUARY 2017

FINAL DESIGN FOR AGENCY REVIEW

SHEET INDEX

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	KEY MAP
3.	EXISTING CONDITIONS 1, EASTERN DRAINAGE SYSTEM
4.	EXISTING CONDITIONS 2, EASTERN DRAINAGE SYSTEM
5.	SELECTIVE DEMOLITION, EASTERN DRAINAGE SYSTEM
6.	PLAN AND PROFILE 1, EASTERN DRAINAGE SYSTEM
7.	PLAN AND PROFILE 2, EASTERN DRAINAGE SYSTEM
8.	EXISTING CONDITIONS, WESTERN DRAINAGE SYSTEM
9.	SELECTIVE DEMOLITION, WESTERN DRAINAGE SYSTEM
10.	PLAN AND PROFILE, WESTERN DRAINAGE SYSTEM
11.	EXISTING CONDITIONS, MOUNTAIN SWALE
12.	GRADING PLAN, MOUNTAIN SWALE
13.	DETAILS
14.	EROSION AND SEDIMENT CONTROL – EAST
15.	EROSION AND SEDIMENT CONTROL – WEST
16.	EROSION AND SEDIMENT CONTROL – MOUNTAIN SWALE

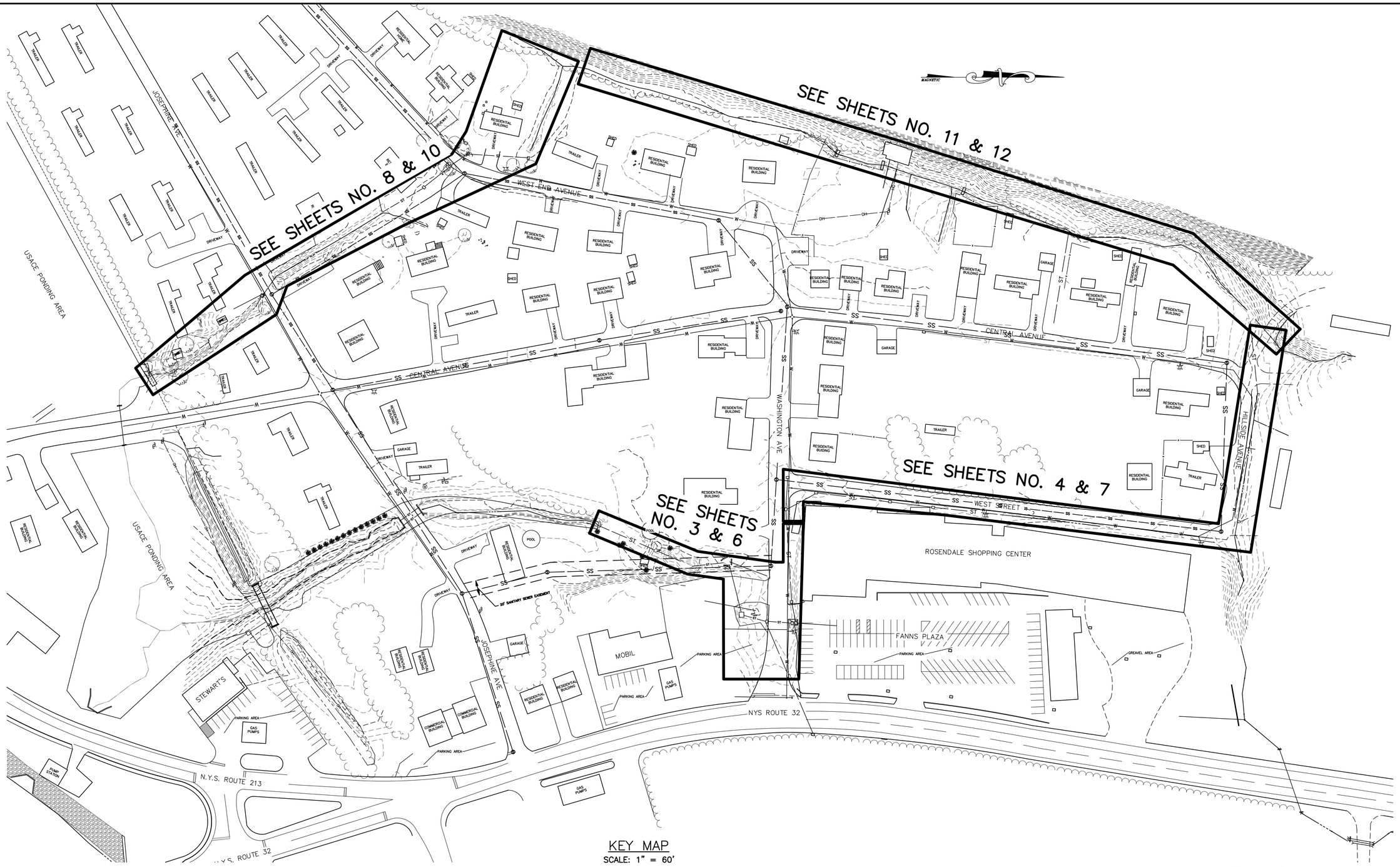
BRINNIER AND LARIOS, P.C.
PROFESSIONAL ENGINEERS AND LAND SURVEYORS
67 MAIDEN LANE
KINGSTON, NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 056741 STATE OF NEW YORK

LICENSED LAND SURVEYOR CHRISTOPHER J. ELLI 49629 STATE OF NEW YORK

Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

811 Know what's below. Call before you dig.



KEY MAP
SCALE: 1" = 60'

KEY MAP
CONTRACT NO. TR-171

NOTE:
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GRAPHIC SCALE IN FEET
60 0 60

LICENSED LAND SURVEYOR
CHRISTOPHER J. TELL
49629
STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER
BENJAMIN M. LARIOS
058747
STATE OF NEW YORK

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WASHINGTON PARK STORMWATER MITIGATION

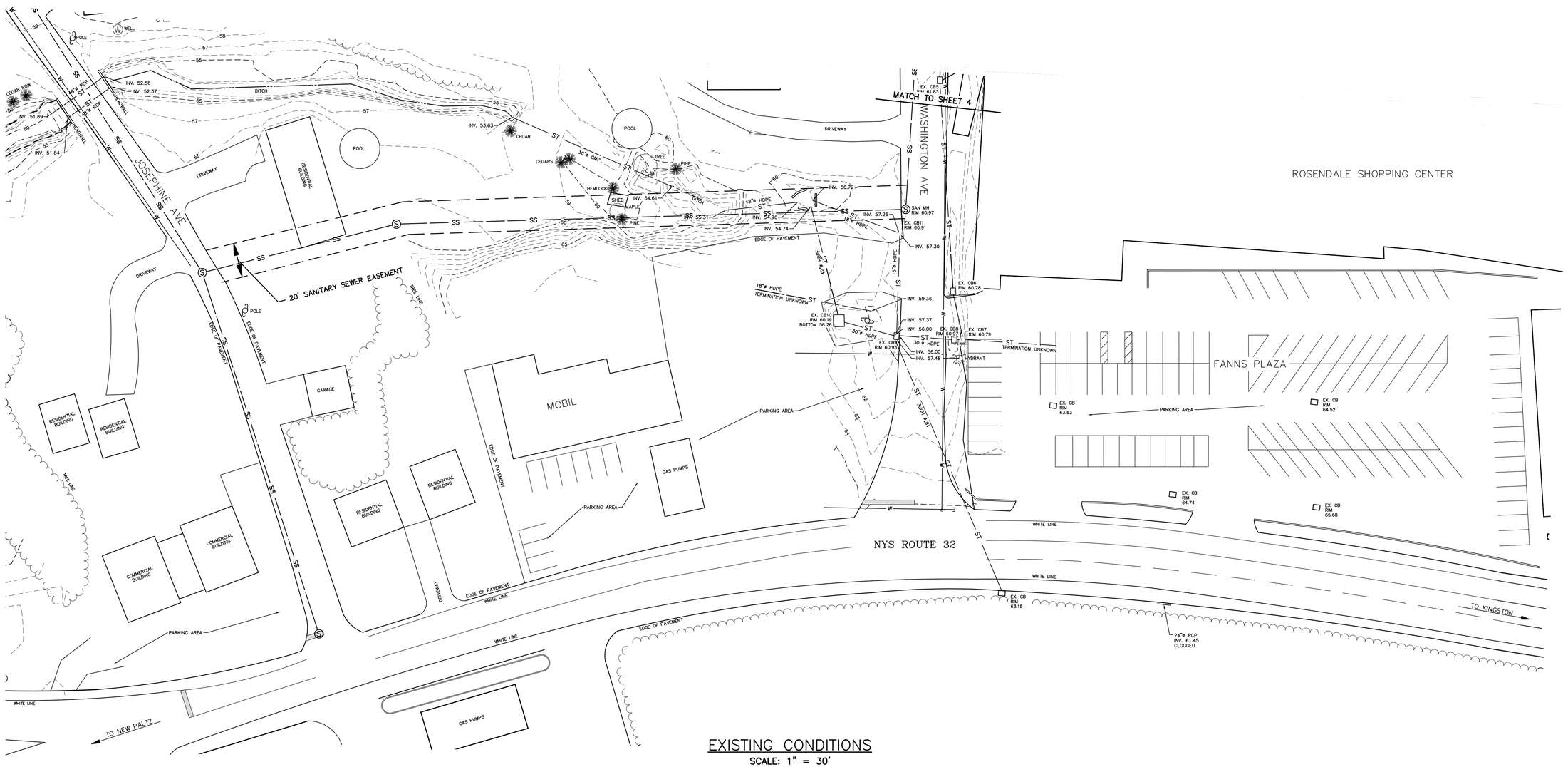
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY

TOWN OF ROSENDALE | ULSTER COUNTY | NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 60'	FEB. 2017		2 OF 16
	DWG RJS	CHK JEM	



EXISTING CONDITIONS

SCALE: 1" = 30'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
X	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:

1. FIELD SURVEY PERFORMED BY BRINNIER AND LARIOS, P.C. ON JUNE 15, 2016, AUGUST 29, 2016 AND NOVEMBER 23, 2016.
2. USACE PONDING AREA BOUNDARY FROM USACE ROSENDALE FLOOD CONTROL PROJECT DRAWING NUMBER CC-RC-209, SHEET 9 OF 79

NOTE:

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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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EXISTING CONDITIONS 1
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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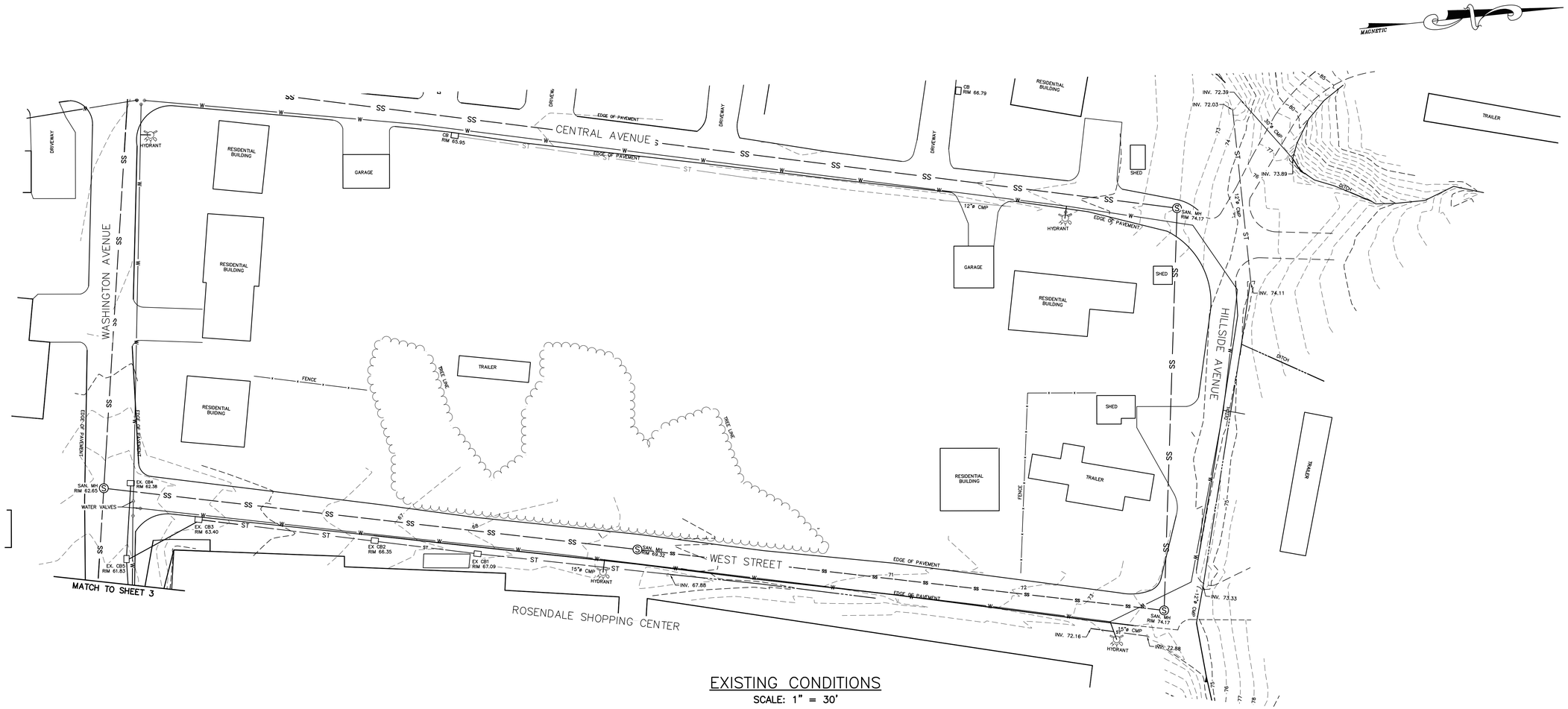
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		3 OF 16
	DWG RJS	CHK JEM	



EXISTING CONDITIONS

SCALE: 1" = 30'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
℄	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:

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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIG M. LARIOS 058747 STATE OF NEW YORK

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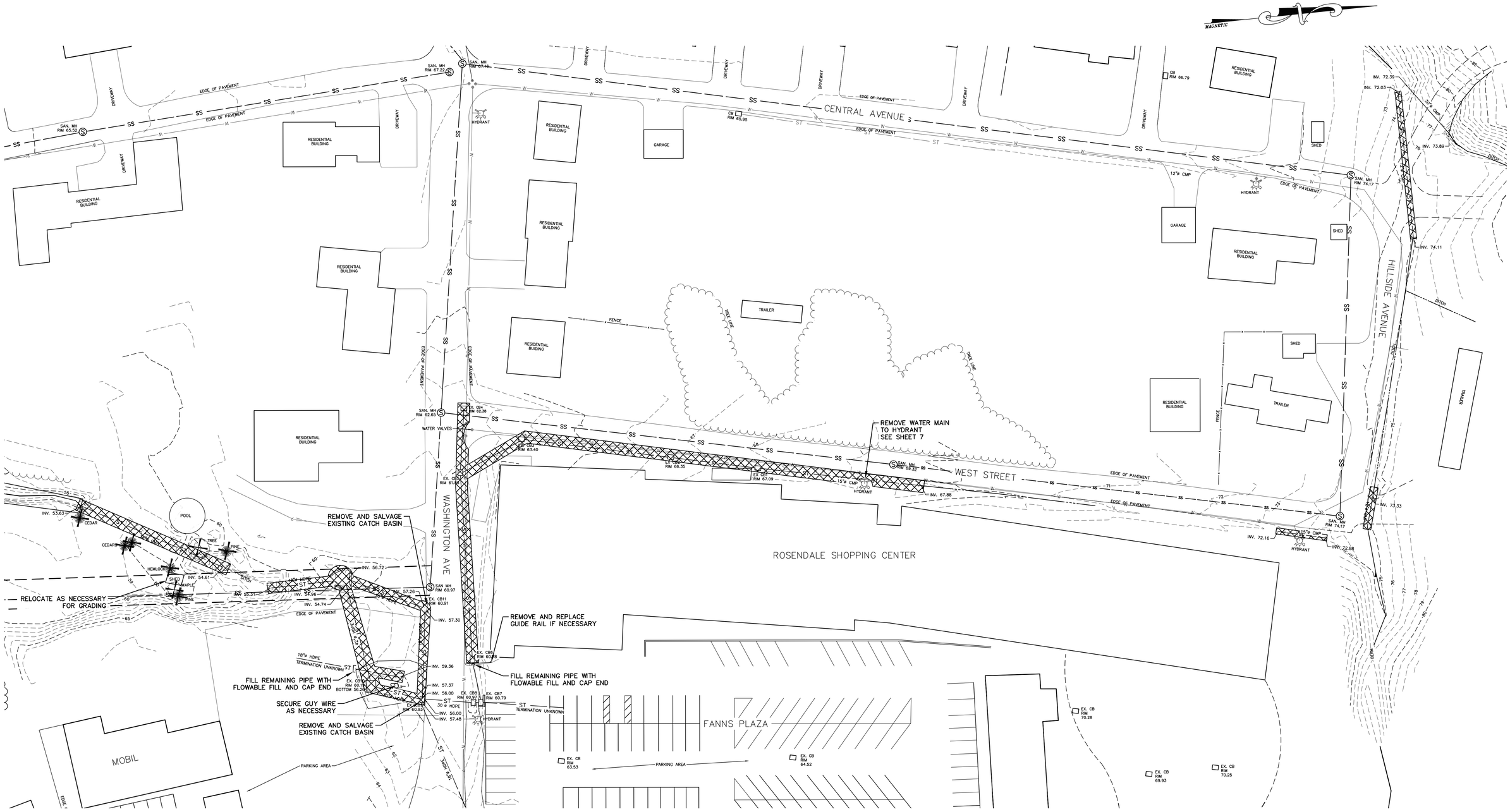
EXISTING CONDITIONS 2
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TS-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		4 OF 16
	DWG RJS	CHK JEM	



SELECTIVE DEMOLITION PLAN

SCALE: 1" = 30'

SELECTIVE DEMOLITION PLAN
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TS-171

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	PROPOSED DEMOLITION
	PROPOSED TREE REMOVAL

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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER BENNO M. LARIOS 058741 STATE OF NEW YORK

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WASHINGTON PARK STORMWATER MITIGATION
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NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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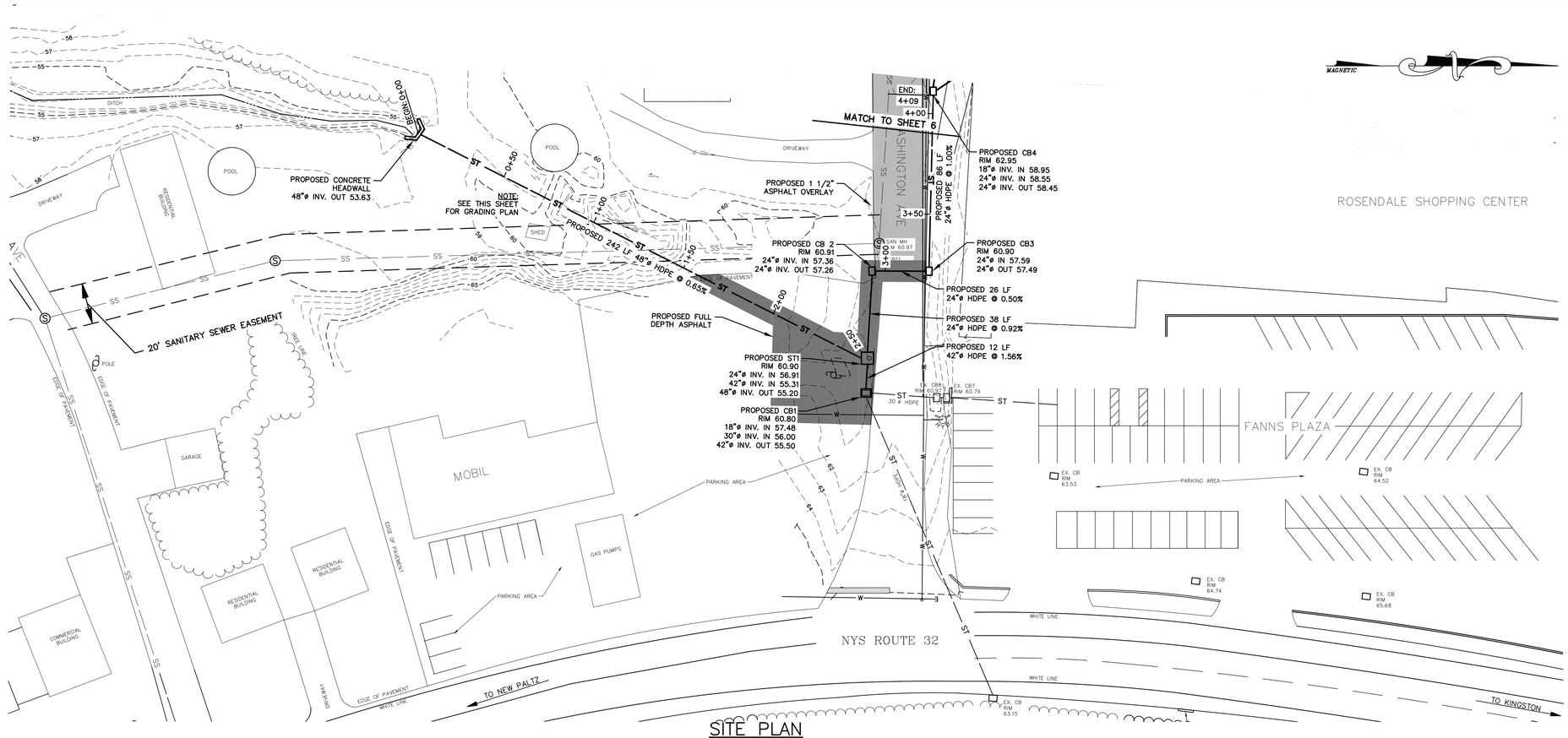
BRINNER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

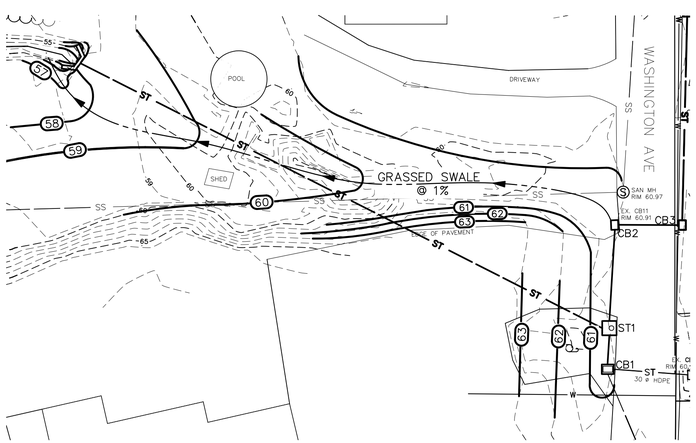
SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		5 OF 16
	DWG RJS	CHK JEM	

DRAINAGE STRUCTURE SCHEDULE					
STRUCTURE	TYPE (ID DIMENSIONS)	RIM ELEV. (FT)	INSIDE HEIGHT (FT)	STORM PIPING	INVERT ELEV. (FT)
ST1	6'x5' MANHOLE W 24" COVER	60.90	6 +/-	24"Ø HDPE IN	56.91
				42"Ø HDPE IN	55.31
				48"Ø HDPE OUT	55.20
CB1	4'x5' CATCH BASIN W F&G	60.80	6 +/-	18"Ø HDPE IN	57.48
				30"Ø HDPE IN	56.00
				42"Ø HDPE OUT	55.50
CB2	4'x4' CATCH BASIN W F&G	60.91	4 +/-	24"Ø HDPE IN	57.36
				24"Ø HDPE OUT	57.26
CB3	4'x4' CATCH BASIN W F&G	60.90	4 +/-	24"Ø HDPE IN	57.59
				24"Ø HDPE OUT	57.49
CB4	4'x4' CATCH BASIN W F&G	62.95	5 +/-	18"Ø HDPE IN	58.95
				24"Ø HDPE IN	58.55
				24"Ø HDPE OUT	58.45

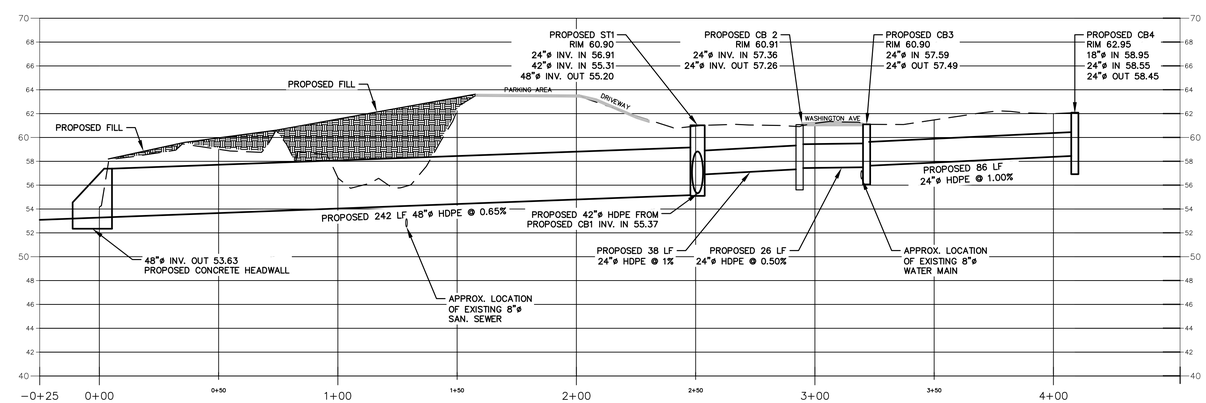
NOTES:
1. SEE PLAN AND PROFILE DRAWINGS FOR ORIENTATION OF PIPES.
2. ALL 4' CB STRUCTURES SHALL HAVE 30" X 48" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #7585 F&G ASSEMBLY OR APPROVED EQUAL.
3. ALL 3' CB STRUCTURES SHALL HAVE 24" X 24" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #5423 F&G ASSEMBLY OR APPROVED EQUAL.



SITE PLAN
SCALE: 1" = 30'



GRADING PLAN
SCALE: 1" = 30'



PROFILE OF STORM SEWER
SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

PLAN AND PROFILE 1
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

NOTE:
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LEGEND

50	CONTOURS (MINOR)		UTILITY POLE	ST	PROPOSED STORM SEWER
52	CONTOURS (MAJOR)		EXISTING HYDRANT		PROPOSED CATCH BASIN
PL	PROPERTY LINE	EX. CB1	EXISTING CATCH BASIN	58	PROPOSED CONTOUR
SS	EXISTING SANITARY SEWER	S	SANITARY MANHOLE		PROPOSED FULL DEPTH ASPHALT PAVEMENT
ST	EXISTING STORM SEWER	M	MANHOLE		PROPOSED 1 1/2" ASPHALT OVERLAY
W	EXISTING WATER LINE				
	DITCH				
	APPROX. TREE LINE				
x	FENCE				

GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER V. FELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER BERNIE M. LARIOS 058747 STATE OF NEW YORK

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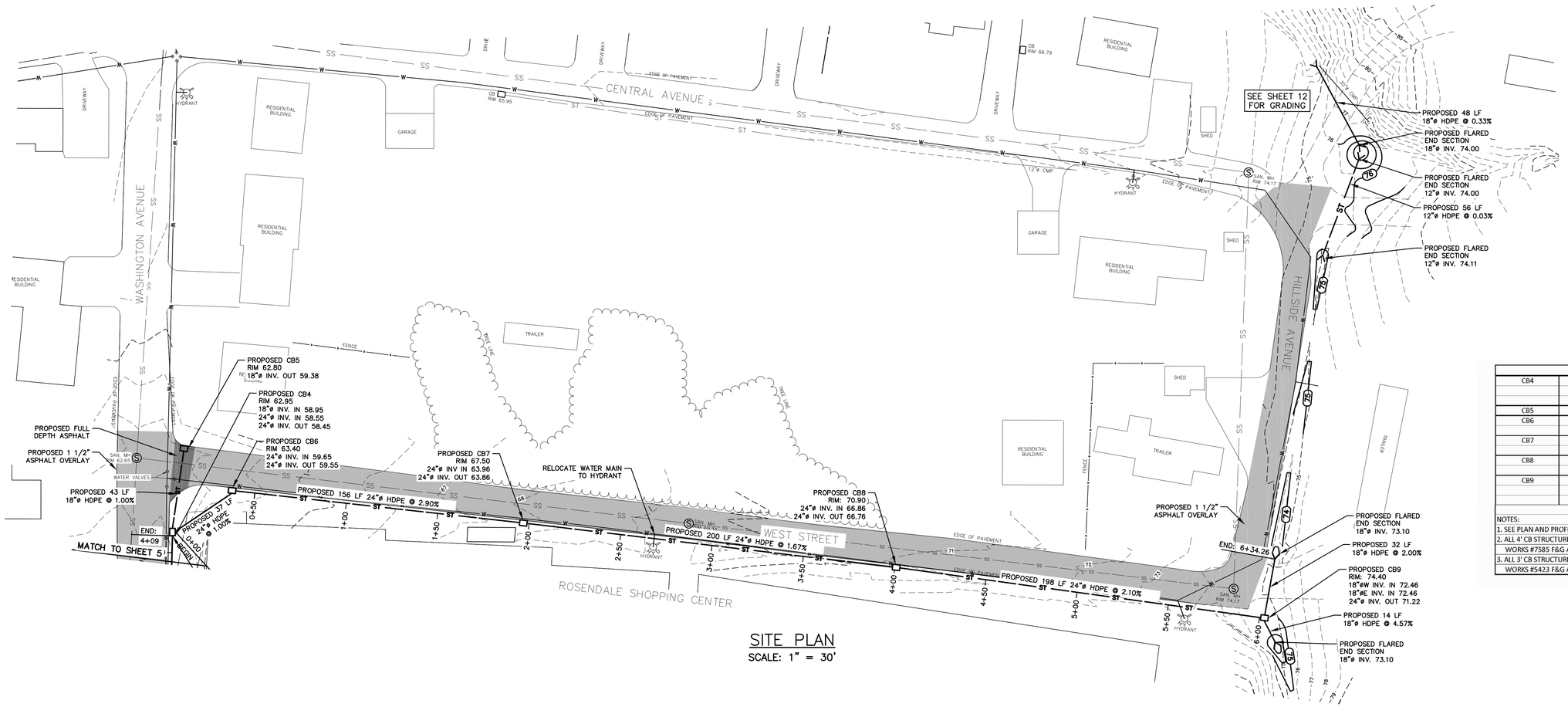
WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		6 OF 16
	DWG. RJS	CHK. JEM	

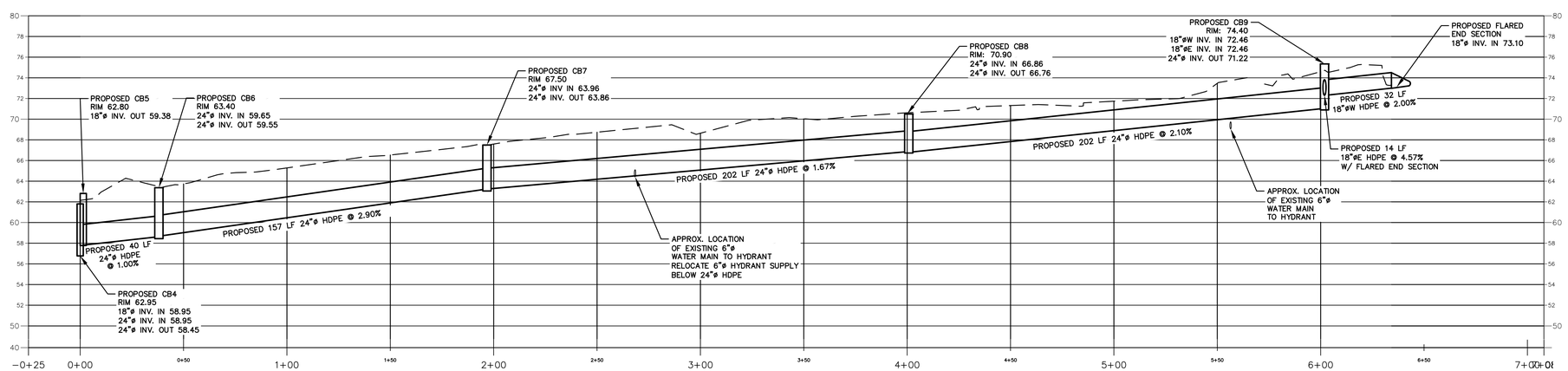


SITE PLAN

SCALE: 1" = 30'

DRAINAGE STRUCTURE SCHEDULE					
CB4	4'x4' CATCH BASIN W F&G	62.95	5 +/-	18"Ø HDPE IN	58.95
				24"Ø HDPE IN	58.55
				24"Ø HDPE OUT	58.45
CB5	3'X3' CATCH BASIN W F&G	62.80	4 +/-	24"Ø HDPE OUT	59.38
CB6	4'x4' CATCH BASIN W F&G	63.40	4 +/-	24"Ø HDPE IN	59.65
				24"Ø HDPE OUT	59.55
CB7	4'x4' CATCH BASIN W F&G	67.50	4 +/-	24"Ø HDPE IN	63.96
				24"Ø HDPE OUT	63.86
CB8	4'x4' CATCH BASIN W F&G	70.90	5 +/-	24"Ø HDPE IN	66.86
				24"Ø HDPE OUT	66.76
CB9	4'x4' CATCH BASIN W F&G	74.40	4 +/-	18"Ø HDPE IN	72.46
				18"Ø HDPE IN	72.46
				24"Ø HDPE OUT	71.22

NOTES:
1. SEE PLAN AND PROFILE DRAWINGS FOR ORIENTATION OF PIPES.
2. ALL 4' CB STRUCTURES SHALL HAVE 30" X 48" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #7585 F&G ASSEMBLY OR APPROVED EQUAL.
3. ALL 3' CB STRUCTURES SHALL HAVE 24" X 24" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #5423 F&G ASSEMBLY OR APPROVED EQUAL.



PROFILE OF STORM SEWER

SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR
- PROPOSED FULL DEPTH ASPHALT PAVEMENT
- PROPOSED 1 1/2" ASPHALT OVERLAY

GRAPHIC SCALE IN FEET
30 0 30

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PLAN AND PROFILE 2
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		7 OF 16
	DWG RJS	CHK JEM	

EXISTING CONDITIONS

SCALE: 1" = 30'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:

1. FIELD SURVEY PERFORMED BY BRINNIER AND LARIOS, P.C. ON JUNE 15, 2016, AUGUST 29, 2016 AND NOVEMBER 23, 2016.
2. USACE PONDING AREA BOUNDARY FROM USACE ROSENDALE FLOOD CONTROL PROJECT DRAWING NUMBER CC-RC-209, SHEET 9 OF 79

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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER SERVIS M. LARIOS 058747 STATE OF NEW YORK

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EXISTING CONDITIONS
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

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SCALE	DATE		SHEET NO.
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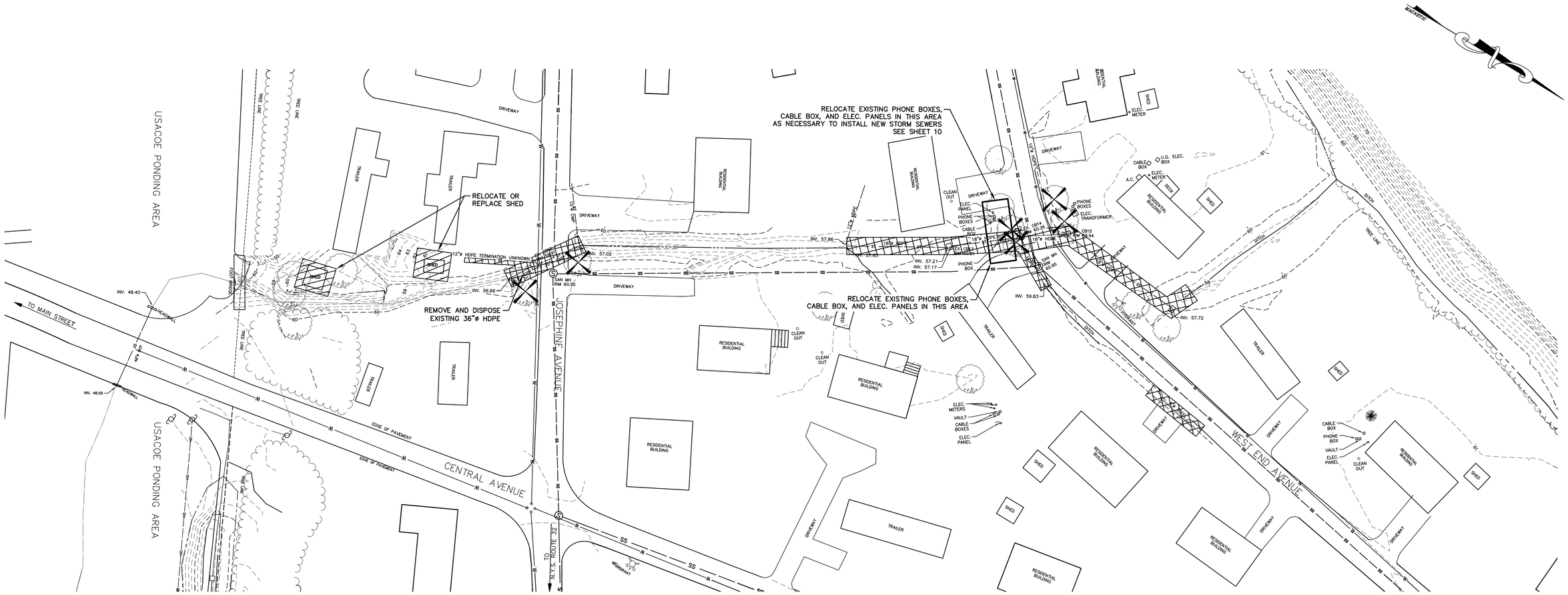
	DWG RJS	CHK JEM	



SELECTIVE DEMOLITION PLAN

SCALE: 1" = 30'

LEGEND

CONTOURS (MINOR)	UTILITY POLE
CONTOURS (MAJOR)	EXISTING HYDRANT
PROPERTY LINE	EXISTING CATCH BASIN
EXISTING SANITARY SEWER	SANITARY MANHOLE
EXISTING STORM SEWER	MANHOLE
EXISTING WATER LINE	PROPOSED DEMOLITION
DITCH	PROPOSED TREE REMOVAL
APPROX. TREE LINE	
FENCE	

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SELECTIVE DEMOLITION PLAN
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

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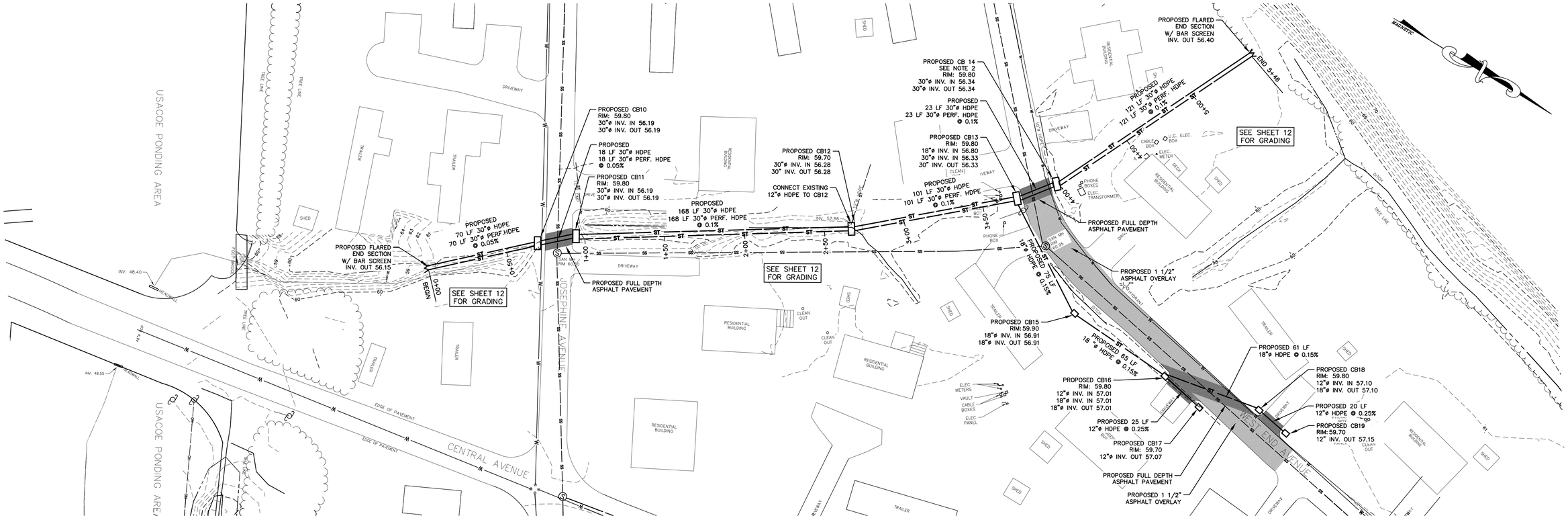

SITE PLAN

SCALE: 1" = 30'

DRAINAGE STRUCTURE SCHEDULE					
CB9	4'x4' CATCH BASIN W F&G	74.40	4 +/-	18"Ø HDPE IN	72.46
				18"Ø HDPE IN	72.46
				24"Ø HDPE OUT	71.22
CB10	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.19
CB11	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.19
CB12	4'X8' CATCH BASIN W F&G	59.80	4	12" HDPE IN	57.86
				2 - 30"Ø HDPE	56.28
CB13	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.33
CB14	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.34
CB15	3'X3' CATCH BASIN W F&G	59.90	4 +/-	18"Ø HDPE	56.91
CB16	4'X4' CATCH BASIN W F&G	59.80	3 +/-	18"Ø HDPE IN	57.01
				12"Ø HDPE IN	57.01
				18"Ø HDPE OUT	57.01
CB17	3'X3' CATCH BASIN W F&G	59.70	3 +/-	12"Ø HDPE OUT	57.05
CB18	3'X3' CATCH BASIN W F&G	59.80	3 +/-	12"Ø HDPE IN	57.10
				18"Ø HDPE OUT	57.10
CB19	3'X3' CATCH BASIN W F&G	59.70	3 +/-	12"Ø HDPE OUT	57.13

NOTES:
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2. ALL 4' CB STRUCTURES SHALL HAVE 30" X 48" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #7585 F&G ASSEMBLY OR APPROVED EQUAL.
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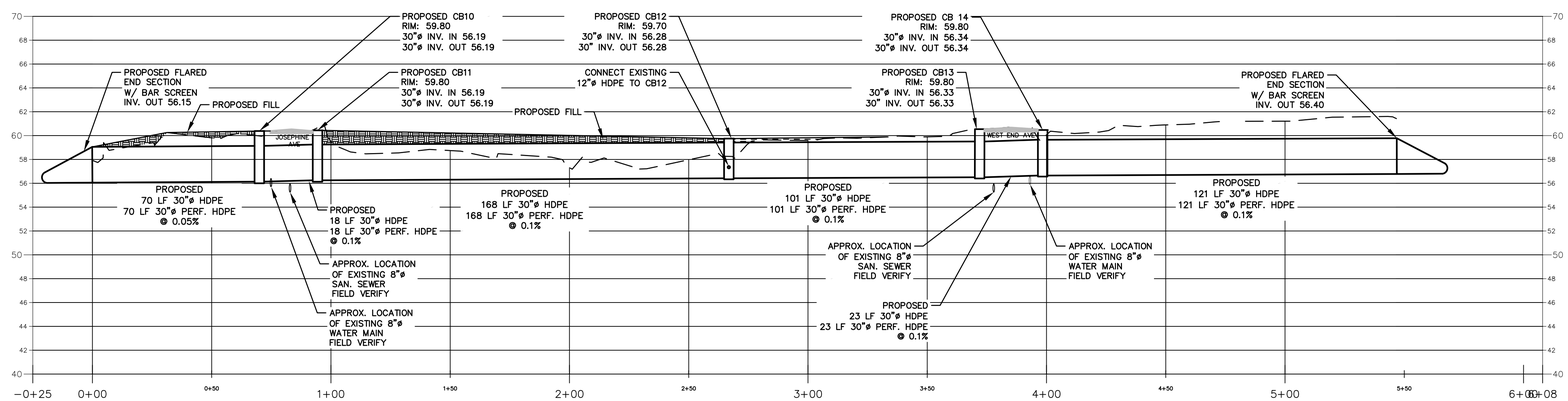

PROFILE OF STORM SEWER

SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

LEGEND

50	CONTOURS (MINOR)		UTILITY POLE	ST	PROPOSED STORM SEWER
52	CONTOURS (MAJOR)		EXISTING HYDRANT		PROPOSED CATCH BASIN
PL	PROPERTY LINE	EX. CB1	EXISTING CATCH BASIN	50	PROPOSED CONTOUR
SS	EXISTING SANITARY SEWER	S	SANITARY MANHOLE		PROPOSED FULL DEPTH ASPHALT PAVEMENT
ST	EXISTING STORM SEWER	M	MANHOLE		PROPOSED 1 1/2" ASPHALT OVERLAY
W	EXISTING WATER LINE				
	DITCH				
	APPROX. TREE LINE				
X	FENCE				

NOTE:
The location of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the contractor's failure to exactly locate and preserve any and all underground utilities.

NOTE:
1. FIELD VERIFY TOP OF PIPE ELEVATIONS AT EACH SANITARY CROSSING PRIOR TO INSTALLING ANY STORM SEWER PIPING.
2. CB14 SHALL HAVE AN 8"HIGH X 12"LONG OPENING ON THE SOUTH SIDEWALL AT ELEV. 58.25 FEET.

GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. FELL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

PLAN AND PROFILE
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		10 OF 16
	DWG RJS	CHK JEM	

EXISTING CONDITIONS

SCALE: 1" = 40'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
℄	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:
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GRAPHIC SCALE IN FEET

40 0 40

LICENSED LAND SURVEYOR — CHRISTOPHER J. TELL — 49679 — STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER — DENNIS M. LARIOS — 058741 — STATE OF NEW YORK

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EXISTING CONDITIONS
MOUNTAIN SWALE
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE — ULSTER COUNTY — NEW YORK

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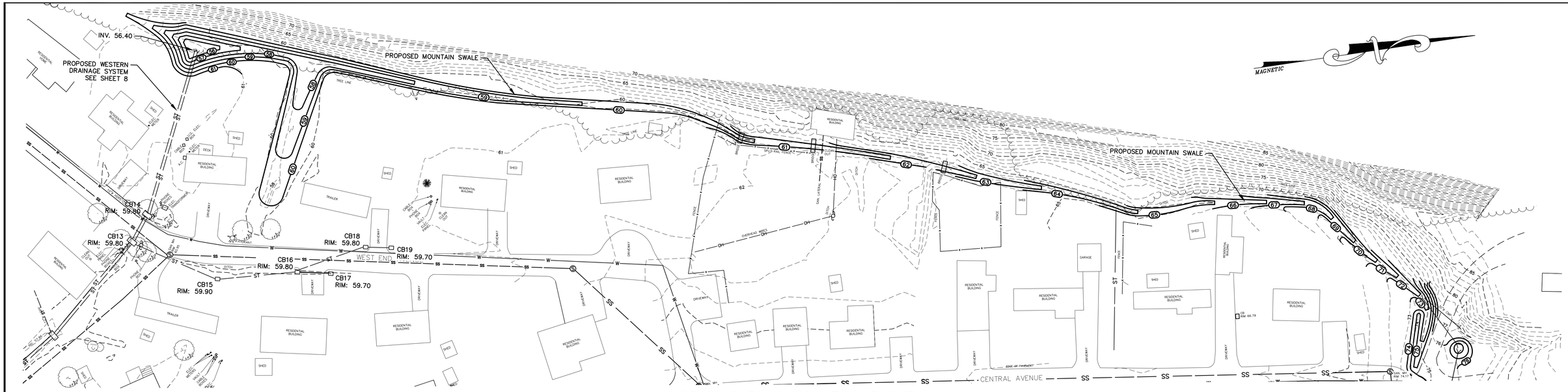
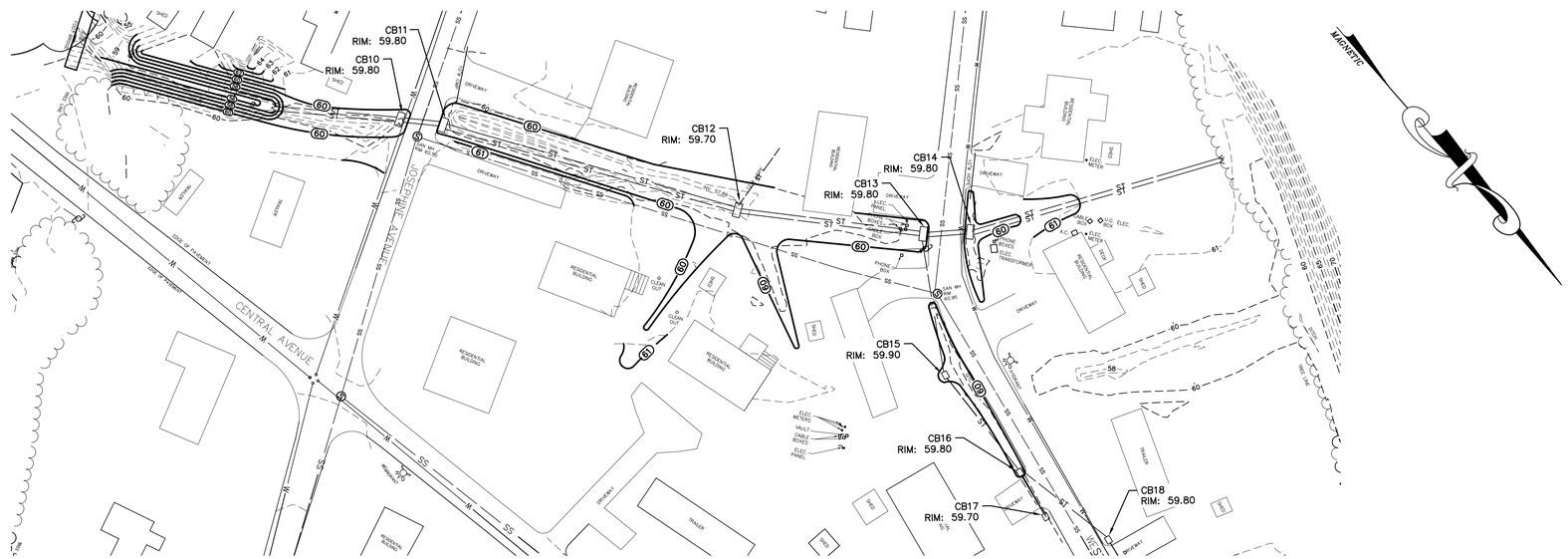
67 MAIDEN LANE — KINGSTON, N.Y.
Phone: 845-338-7622 — Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 40'	FEB. 2017		11 OF 16
	DWG RJS	CHK JEM	



GRADING PLAN MOUNTAIN SWALE

SCALE: 1" = 40'



GRADING PLAN WESTERN DRAINAGE SYSTEM

SCALE: 1" = 40'

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR

NOTE:
The location of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the contractor's failure to exactly locate and preserve any and all underground utilities.

GRAPHIC SCALE IN FEET

40 0 40

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIE M. LARIOS 058747 STATE OF NEW YORK

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GRADING PLAN
WEST AND MOUNTAIN SWALE
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

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67 MAIDEN LANE KINGSTON, N.Y.
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SCALE	DATE		SHEET NO.
1" = 40'	FEB. 2017		12 OF 16
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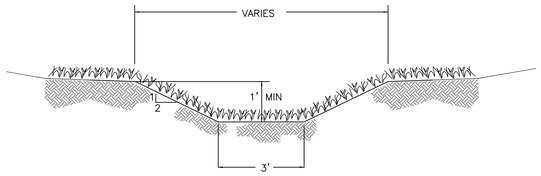
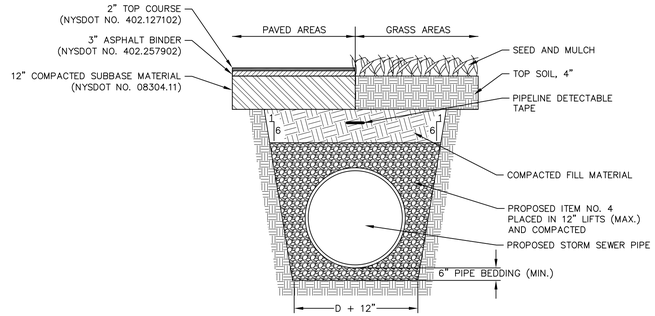
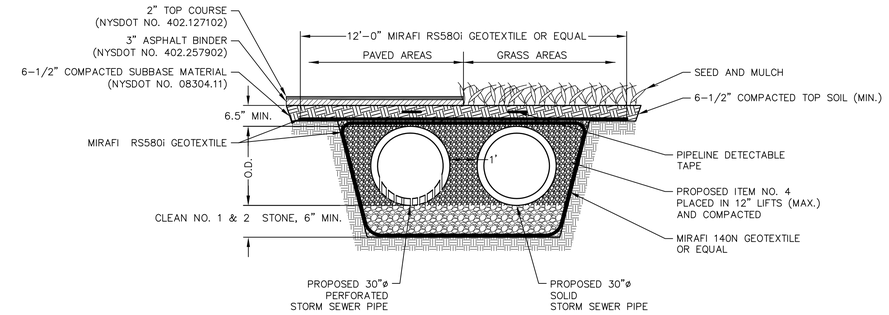


VEGETATION REQUIREMENTS FOR OPEN CHANNELS
SEED MIXTURE SHALL BE TALL FESCUE OR SMOOTH BROMEGRASS (0.45 LBS/1000 SF), KENTUCKY BLUEGRASS (0.6 LBS/1000 SF) OR PERENNIAL RYEGRASS (0.2 LBS/1000 SF). MULCH SEEDED AREAS. FERTILIZE, LIME AND MOW AS NEEDED TO MAINTAIN DENSE PROTECTIVE COVER.

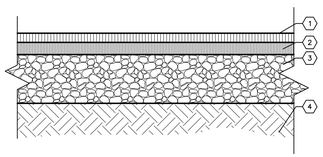
TYPICAL MOUNTAINSIDE SWALE SECTION
NOT TO SCALE



TYPICAL STORM SEWER TRENCH DETAIL
NOT TO SCALE



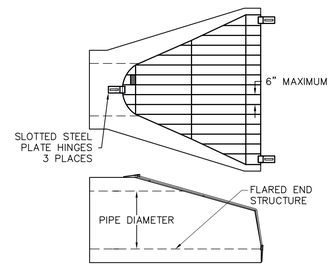
STORM SEWER TRENCH DETAIL
WESTERN DRAINAGE SYSTEM
NOT TO SCALE



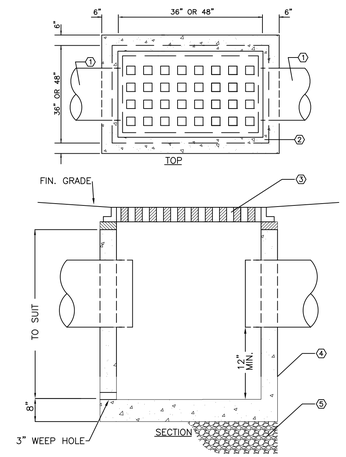
KEYED NOTES

1. 2" TYPE 6F2 ASPHALT WEARING SURFACE OVER TACK COAT. (NYSDOT #403.178202
2. 3" TYPE 3 BINDER OVER PRIME COAT. (NYSDOT #403.138902 M)
3. 12" (MIN.) COMPACTED ITEM #4 BASE MATERIAL. (NYSDOT #304.11 M)
4. WELL-DRAINED SUB-GRADE (COMPACT SUB-GRADE TO 95% MODIFIED PROCTOR),

TYPICAL PAVEMENT SECTION
NOT TO SCALE



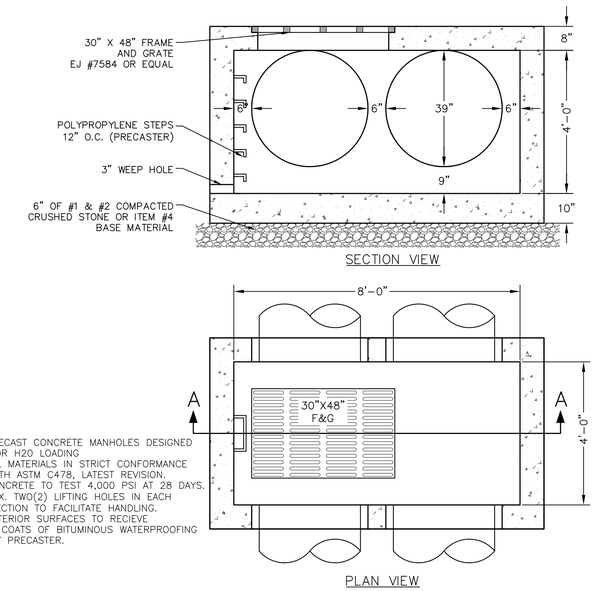
TYPICAL TRASH GUARD
FLARED END
NOT TO SCALE



KEYED NOTES

1. SEE SITE UTILITY PLAN FOR PIPE SIZES AND INVERTS.
2. PRECAST CONCRETE CATCH BASIN, 4,000 PSI CONCRETE, DESIGN FOR AASHTO H20 LOADING
3. HEAVY DUTY FRAME AND GRATE (AASHTO H20 LOADING),
   3'X3' CB – 24"X24" F&G. EJ#5423 OR EQUAL
   4'X4' CB – 30"X48" F&G. EJ#7584 OR EQUAL
   4'X5' CB – 30"X48" F&G. EJ#7584 OR EQUAL
4. EXTERIOR SURFACES TO RECEIVE 2 COATS OF BITUMINOUS WATERPROOFING BY PRECASTER
5. 6" OF #1 & #2 COMPACTED CRUSHED STONE OR ITEM #4 BASE MATERIAL

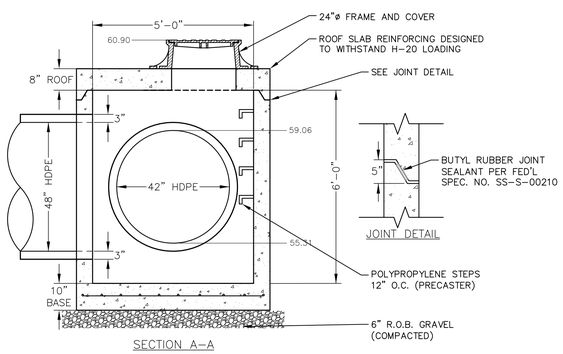
TYPICAL CATCH BASIN DETAIL
NOT TO SCALE



NOTES

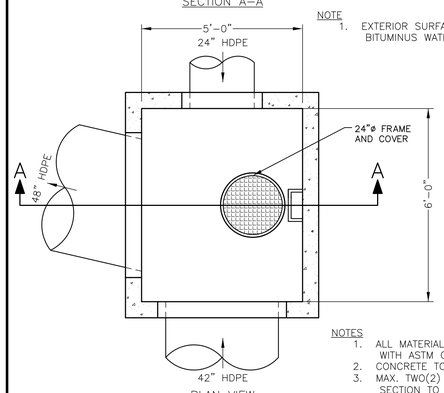
1. PRECAST CONCRETE MANHOLES DESIGNED FOR H20 LOADING
2. ALL MATERIALS IN STRICT CONFORMANCE WITH ASTM C478, LATEST REVISION.
3. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
4. MAX. TWO(2) LIFTING HOLES IN EACH SECTION TO FACILITATE HANDLING.
5. EXTERIOR SURFACES TO RECIEVE 2 COATS OF BITUMINOUS WATERPROOFING BY PRECASTER.

CATCH BASIN CB10–CB14 DETAIL
NOT TO SCALE



NOTE

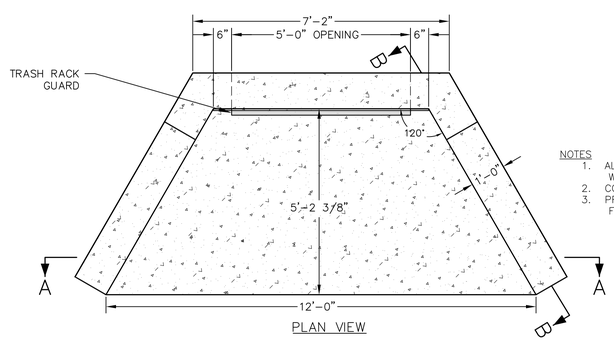
1. EXTERIOR SURFACES TO RECEIVE 2 COATS OF BITUMINUS WATERPROOFING BY PRECASTER.



NOTES

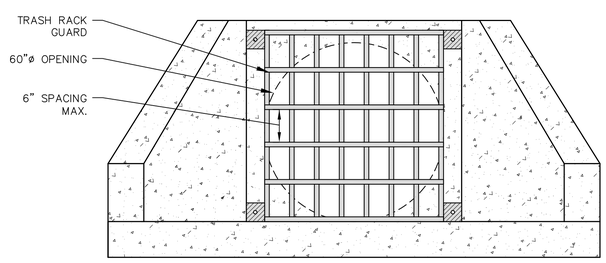
1. ALL MATERIALS IN STRICT CONFORMANCE WITH ASTM C478, LATEST REVISION.
2. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
3. MAX. TWO(2) LIFTING HOLES IN EACH SECTION TO FACILITATE HANDLING.

STORM SEWER ST1 MANHOLE
NOT TO SCALE

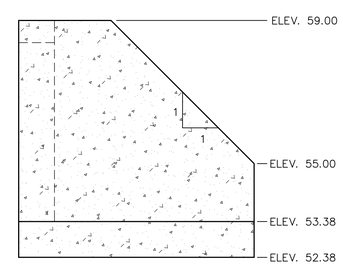


NOTES

1. ALL MATERIALS IN STRICT CONFORMANCE WITH ASTM C478, LATEST REVISION.
2. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
3. PROVIDE LIFTING HOLES AS APPROPRIATE TO FACILITATE HANDLING AND PLACEMENT



SECTION A–A



SECTION B–B

PRECAST 48"ø PIPE HEADWALL, WING WALLS, APRON AND TRASH RACK
NOT TO SCALE

LICENSED LAND SURVEYOR — CHRISTOPHER J. HILL — 49679 — STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER — DENNIS M. LARIOS — 058747 — STATE OF NEW YORK

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DETAILS
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE — ULSTER COUNTY — NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE — KINGSTON, N.Y.
Phone: 845-338-7622 — Fax: 845-338-7660

SCALE	DATE		SHEET NO.
N.T.S.	FEB. 2017		13 OF 16
	DWG RJS	CHK JEM	

EROSION & SEDIMENT CONTROL NOTES:

ALL CONSTRUCTION ACTIVITIES INVOLVING THE REMOVAL OR DEPOSITION OF SOILS ARE TO BE PROVIDED WITH APPROPRIATE PROTECTIVE MEASURES TO MINIMIZE EROSION OF, AND CONTAIN SEDIMENT WITHIN, THE AREA UNDER DEVELOPMENT. THOSE METHODS DEEMED MOST EFFECTIVE ARE DESCRIBED BELOW.

1. FOLLOW THE CONSTRUCTION SCHEDULE OUTLINED ON THIS SHEET.
2. CLEAR ONLY WHAT IS REQUIRED FOR THE IMMEDIATE CONSTRUCTION ACTIVITY. CLEARING AND GRADING SHOULD BE DONE AS CONSTRUCTION PROGRESSES. ONLY THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME DURING CONSTRUCTION.
3. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE.
4. PRIOR TO THE START OF CONSTRUCTION, TEMPORARY SILT FENCING AND/OR OTHER APPROVED DEVICES SHALL BE INSTALLED WHERE DEEMED NECESSARY TO PREVENT SOIL MIGRATION INTO WATER COURSES, WETLANDS, STORM DRAINAGE SYSTEMS, AND OFF SITE. SEE SILTATION CONTROL NOTES FOR INSTALLATION AND MAINTENANCE OF SILT FENCING.
5. WHENEVER POSSIBLE, SITE CONSTRUCTION ACTIVITIES SHALL START AT THE NEAREST POINT UPSLOPE OF THE EROSION CONTROL DEVICE, AND PROCEED TO ACTIVITIES FURTHER UPSLOPE.
6. SILT FENCING/TRAPS SHALL BE CLEANED OUT WHEN ACCUMULATED SEDIMENT HAS REDUCED THE CAPACITY OF THE TRAP BY 50%. SEDIMENT REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF IN A MANNER WHICH PREVENTS IT FROM ENTERING THE TRAP AGAIN.
7. WHEN LAND IS EXPOSED DURING DEVELOPMENT, THE PERIOD OF EXPOSURE SHALL BE KEPT TO A MINIMUM. IF PERMANENT VEGETATION, PAVEMENT, AND/OR STRUCTURES ARE NOT COMPLETED WITHIN 14 DAYS, STRAW MULCH (OR OTHER APPROVED MATERIAL) SHALL BE SPREAD TO TEMPORARILY COVER EXPOSED SOILS.
8. NO PERMITTED CONSTRUCTION ACTIVITIES SHALL TAKE PLACE WITHIN ANY WATERCOURSES OR WETLANDS UNTIL APPROPRIATE MEASURES ARE TAKEN TO PROTECT AND/OR TEMPORARILY DIVERT FLOWING WATER PAST THE WORK AREA AND DOWNSTREAM SEDIMENT CONTROLS ARE IN PLACE. IN GENERAL, THESE SEDIMENT CONTROLS SHALL NOT BE REMOVED UNTIL UPSTREAM ACTIVITY HAS BEEN SATISFACTORILY COMPLETED AND THE STREAM FLOWS CLEAR.
9. ALL TOPSOIL WHICH HAS BEEN STRIPPED AND STOCKPILED SHALL BE PLACED AT LEAST 50 FEET FROM ANY WETLAND OR WATERCOURSE. THE TOE OF THE STOCKPILE SHALL BE PROTECTED IN A MANNER WHICH PREVENTS SOIL FROM MIGRATING.
10. RING ANY TEMPORARY STOCKPILES WITH SILT FENCE TO PREVENT EROSION OF THE PILE.
11. ALL TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL REMAIN IN PLACE AND BE MAINTAINED REGULARLY IN PROPER FUNCTIONING CONDITION UNTIL ALL AREAS EXPOSED DURING CONSTRUCTION HAVE BEEN SUITABLY STABILIZED WITH FINAL VEGETATIVE COVER, PERMANENT STRUCTURES, OR PAVEMENT.
12. THE CONTRACTOR SHALL COMPLY WITH THE PROVISIONS OF ALL ENVIROMENTAL/SPDES PERMITS ISSUED FOR THIS PROJECT AND LOCAL, STATE AND FEDERAL REGULATIONS.
13. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PREVENT CONTAMINATION OF THE EXISTING DRAINAGE SWALES BY SILT, SEDIMENT, FUELS, SOLVENTS, LIQUIDS, CONCRETE LEACHATE, OR ANY OTHER POLLUTANT ASSOCIATED WITH THE CONSTRUCTION OF THIS PROJECT.

CONSTRUCTION SCHEDULE:

1. FLAG THE LIMIT OF DISTURBANCE TO DELINEATE THE WORK AREAS.
2. HOLD A PRE–CONSTRUCTION MEETING PRIOR TO STARTING CONSTRUCTION.
3. INSTALL TEMPORARY STABILIZED CONSTRUCTION ENTRANCE.
4. INSTALL TEMPORARY SILT FENCING. SILT FENCE LOCATIONS AS DEPICTED ON PLANS ARE ILLUSTRATIVE. CONTRACTOR SHALL EXERCISE DILIGENCE WHEN INSTALLING SILT FENCE TO CAPTURE ALL SEDIMENT LADEN RUNOFF.
5. CLEAR AND ROUGH GRADE SITE IN THE AREAS OF IMMEDIATE CONSTRUCTION ACTIVITY ONLY.
6. STOCKPILE TOPSOIL. CONSTRUCT CHANNELS. BARE AREAS SHALL BE MULCHED SHOULD GRADING BE DISCONTINUED FOR MORE THAN 14 DAYS.
7. COMPLETE FINAL GRADING FOR SLOPE STABILIZATION.
8. COMPLETE FINAL GRADING. TOPSOIL CRITICAL AREAS AND PERMANENTLY VEGETATE, LANDSCAPE AND MULCH.
9. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AT LEAST ONCE EVERY (7) SEVEN CALENDER DAYS. NEEDED REPAIRS WILL BE MADE IMMEDIATELY. IF GREATER THAN 5 ACRES OF LAND IS DISTURBED AT ONE TIME, THE QUALIFIED INSPECTOR SHALL CONDUCT 2 SITE INSPECTIONS EVERY (7) SEVEN CALENDER DAYS.
10. AFTER THE SITE IS STABILIZED, REMOVE ALL TEMPORARY MEASURES AND INSTALL PERMANENT VEGETATION ON THE DISTURBED AREAS.

INSPECTIONS AND REPORTING:

1. FOLLOW ALL REQUIREMENTS OUTLINED IN THE SWPPP AND NYSDEC SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY, PERMIT NO. GP–0–15–002.

SILTATION CONTROL NOTES:

1. ALL SILTATION AND EROSION CONTROL STRUCTURES SHALL BE INSTALLED PRIOR TO ANY EXCAVATION AND AS ACCEPTABLE TO THE ENGINEER. SILT FENCE SHALL BE MAINTAINED FOR THE DURATION OF SAID WORK AND SHALL NOT BE REMOVED UNTIL APPROVED BY THE ENGINEER.

2. SILT FENCE SHALL CONSIST OF 24" HIGH GEOTEXTILE FABRIC (FILTER CLOTH) INSTALLED PARALLEL WITH THE TOE OF SLOPES AS INDICATED ON THE PLAN.

3. THE FABRIC SHALL BE FASTENED SECURELY AT THE TOP AND MID SECTION TO MIN. 3' LONG FENCE POSTS PLACED A MAX. OF 10' ON CENTER. THE BOTTOM 6" OF FABRIC SHALL BE LAID INTO THE TRENCH TO PREVENT UNDERMINING.

4. ADJOINING SECTIONS OF FILTER CLOTH SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.

5. SILT FENCING SHALL BE CLEANED OUT WHEN NEED, WHEN ACCUMULATED SEDIMENT HAS REDUCED THE CAPACITY BY 50% OR BULGES DEVELOP IN THE FABRIC. SEDIMENT REMOVED BE PROPERLY DISPOSED OF IN A MANNER WHICH PREVENTS IT FROM ENTERING THE AREA AGAIN.

6. SILT FENCE SHALL BE INSTALLED IN ALL AREAS THAT WILL HAVE AN EXCAVATION OPEN FOR MORE THAN 24 HOURS.

7. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF–PRODUCING RAINFALL AND NO LESS THAN ONCE EVERY WEEK. ANY NEED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED AND INSTALLED FOR THEIR APPROPRIATE PHASE OF THE PROJECT.

LANDSCAPING & VEGETATION ESTABLISHMENT NOTES:

1. ALL TEMPORARY SEEDING SHALL BE RYEGRASS (ANNUAL OR PERENNIAL) AT AN APPLICATION RATE OF 0.7 POUNDS PER 1,000 SQUARE FEET. MULCH IMMEDIATELY AFTER SEEDING WITH STRAW AT A RATE OF 2 BALES (90 lbs) PER 1,000 SQUARE FEET.
2. ALL OTHER SITE AREAS SPECIFIED FOR PERMANENT GRASS VEGETATION SHALL BE SEEDED WITH A MIXTURE OF PERENNIAL RYEGRASS SEED OF THE PENNFINE/JUNN VARIETY AT A RATE 0.10 POUNDS PER 1,000 SQUARE FOOT. EROSION AND SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE INSPECTED UNTIL FULL VEGETATION IS ESTABLISHED.
3. STRAW MULCH SHALL BE USED FOR ALL AREAS WHERE VEGETATION IS TO BE ESTABLISHED. MULCH SHALL BE INSTALLED IMMEDIATELY AFTER SEEDING AT A RATE OF 90–100 POUNDS PER 1,000 SQUARE FEET.

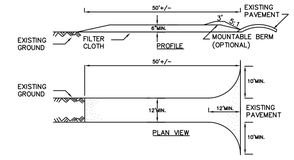
MAINTENANCE SCHEDULE:

MAINTENANCE DURING CONSTRUCTION

- ALL EROSION AND SEDIMENT CONTROL PRACTICES ALONG WITH TREE PROTECTION PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION EVERY SEVEN DAYS. ANY NEEDED REPAIRS WILL BE DONE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED AND INSTALLED FOR THEIR APPROPRIATE PHASE OF THE PROJECT.
- THE STABILIZED CONSTRUCTION ENTRANCES SHALL BE CLEANED OR REPLACED WHEN TRACKING OF SEDIMENT BECOMES EVIDENT.

LONG TERM MAINTENANCE

- WEED AND WATER TO ESTABLISH PERMANENT VEGETATION.
- REPLACEMENT/REHABILITATION SHALL BE MADE TO ANY ERODED AREAS.
- PROVIDE REPLACEMENT OF PLANTINGS, MULCH, WEEDING AND THINNING TO MAINTAIN THE DESIRED APPEARANCE.
- THE STORM WATER MANAGEMENT AREAS SHALL BE KEPT CLEAN OF TRASH AND DEBRIS.
- INSPECT AT LEAST TWICE DURING THE FIRST SIX MONTHS. SUBSEQUENTLY, INSPECTIONS SHOULD BE CONDUCTED ANNUALLY AND AFTER STORM EVENTS GREATER THAN 2".

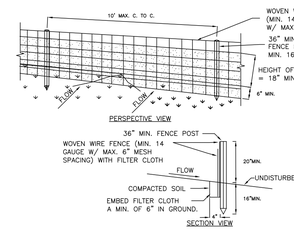


CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY–FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN EVENT.
10. STABILIZED CONSTRUCTION ENTRANCES SHALL BE CONSTRUCTED AND MAINTAINED AT SITE ENTRANCES DURING PHASE I CONSTRUCTION AND AT DRIVEWAY ENTRANCES DURING PHASE II CONSTRUCTION.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

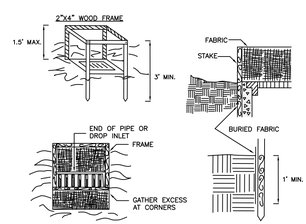


CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER–LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
6. SILT FENCE LOCATIONS AS DEPICTED ON PLANS ARE ILLUSTRATIVE. CONTRACTOR SHALL EXERCISE DILIGENCE WHEN INSTALLING SILT FENCE TO CAPTURE ALL SEDIMENT LADEN RUNOFF.

SILT FENCE DETAIL

NOT TO SCALE



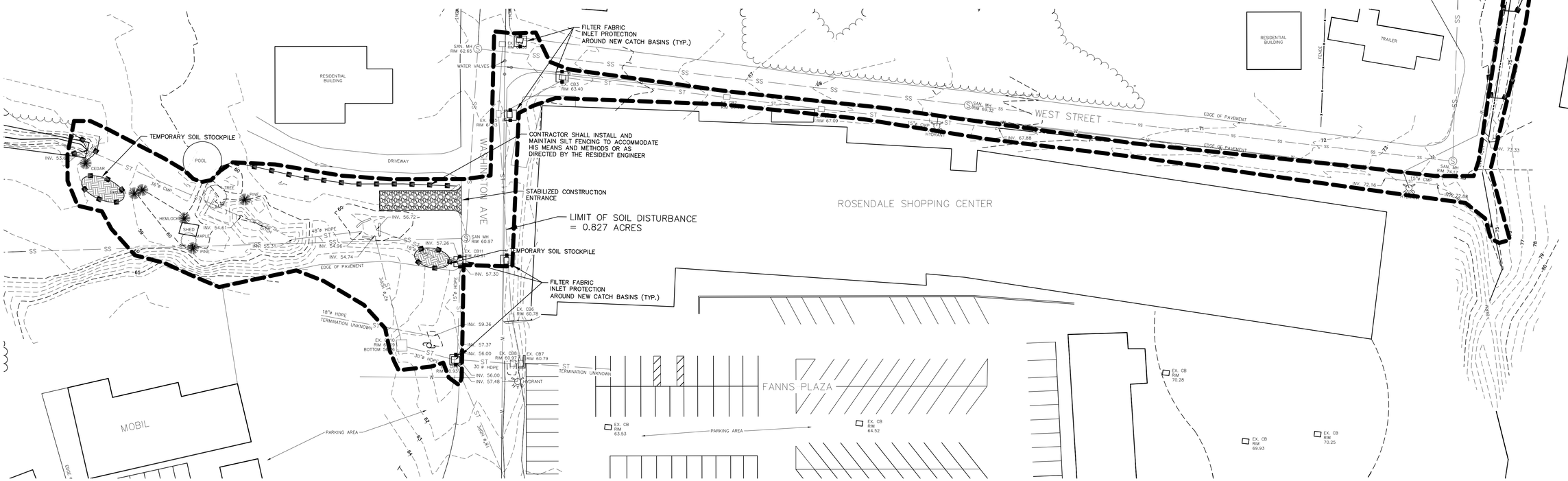
CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40–85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUN DRAINAGE AREA 1 ACRE

FILTER FABRIC INLET PROTECTION

NOT TO SCALE



EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 30'

EROSION AND SEDIMENT CONTROL PLAN – EAST
CONTRACT NO. TS–171

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	SILT FENCE AND CB INLET PROTECTION

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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. FELL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058741 STATE OF NEW YORK

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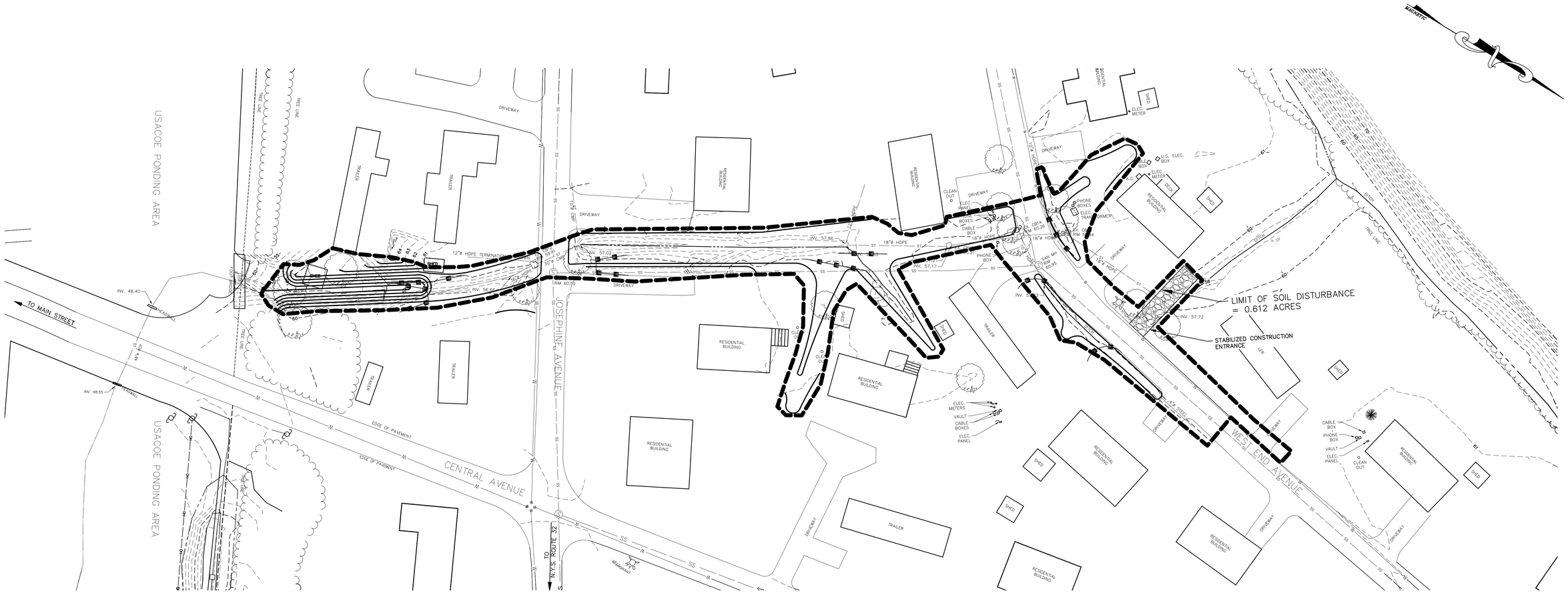
WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845–338–7622 Fax: 845–338–7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		14 OF 16
	DWG RJS	CHK JEM	



EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 30'

NOTE:

1. SEE SHEET 14 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
2. CONTRACTOR SHALL INSTALL AND MAINTAIN SILT FENCING TO ACCOMMODATE HIS MEANS AND METHODS OR AS DIRECTED BY THE OWNERS REPRESENTATIVE.
3. SEE SHEET 12 FOR GRADING PLAN.

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EX. CB1 EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- SILT FENCE AND CB INLET PROTECTION

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LICENSED PROFESSIONAL ENGINEER JENNIFER M. LARIOS 058741 STATE OF NEW YORK

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EROSION AND SEDIMENT
CONTROL PLAN – EAST
CONTRACT NO. TS–171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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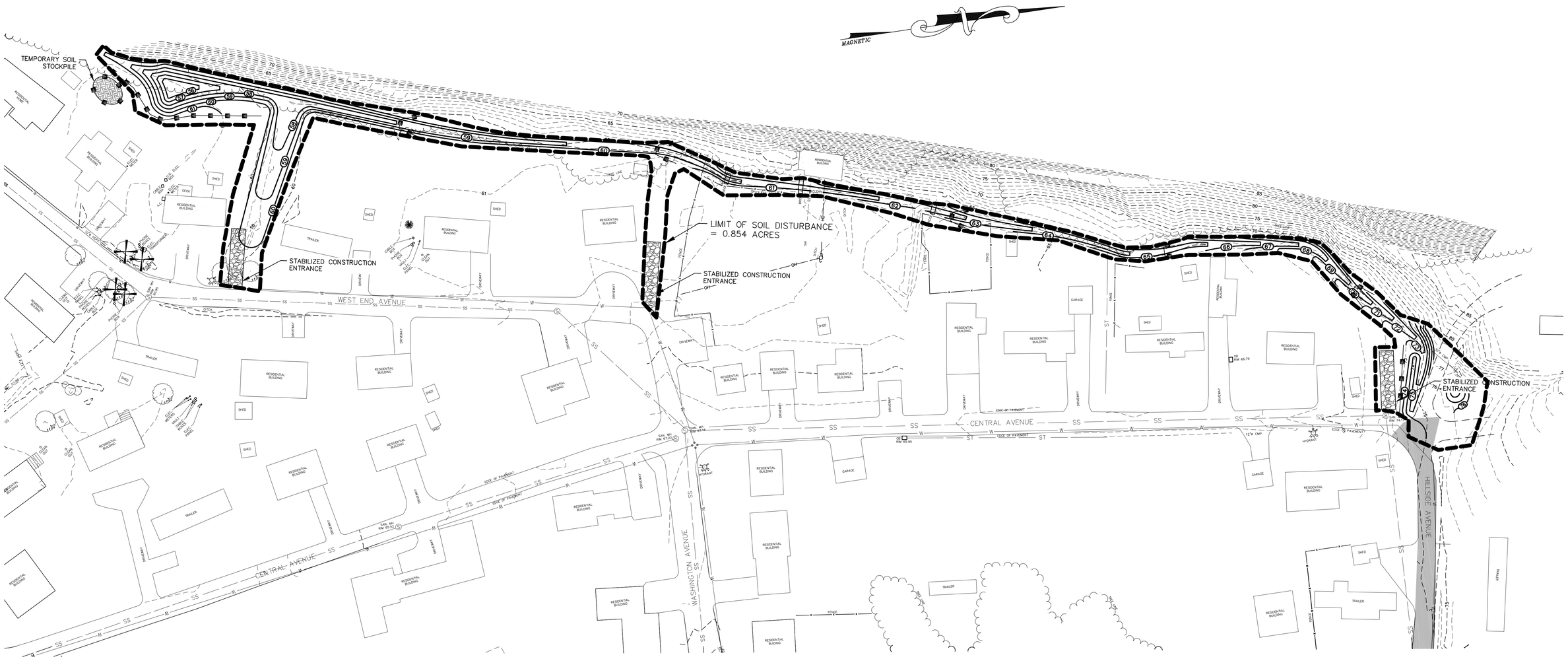

EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 40'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	SILT FENCE AND CB INLET PROTECTION

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NOTE:

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3. SEE SHEET 12 FOR GRADING PLANS.

GRAPHIC SCALE IN FEET

40 0 40

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL #9679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIS M. LARIOS 058747 STATE OF NEW YORK

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EROSION AND SEDIMENT CONTROL PLAN – MOUNTAIN SWALE
CONTRACT NO. TS–171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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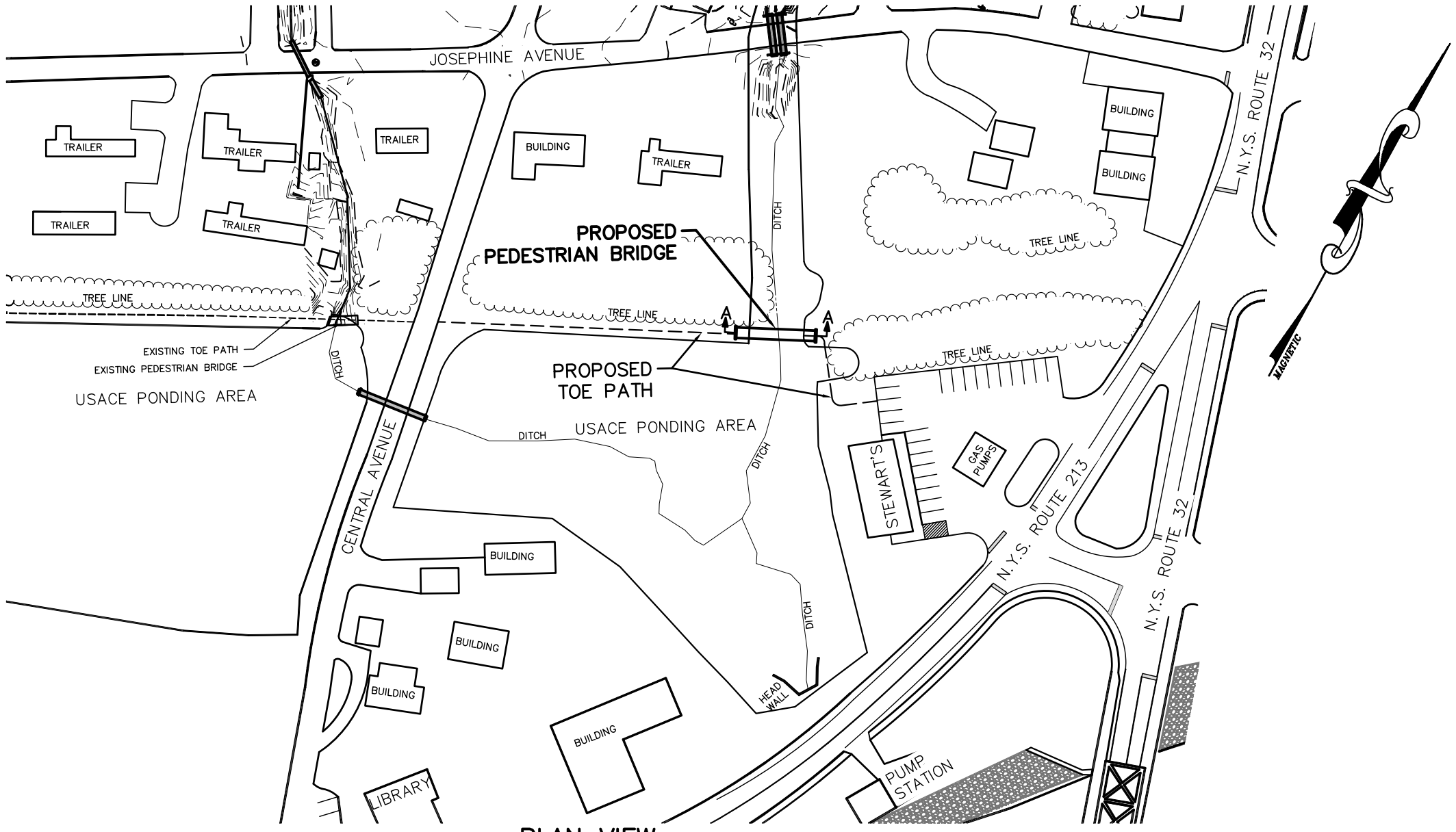
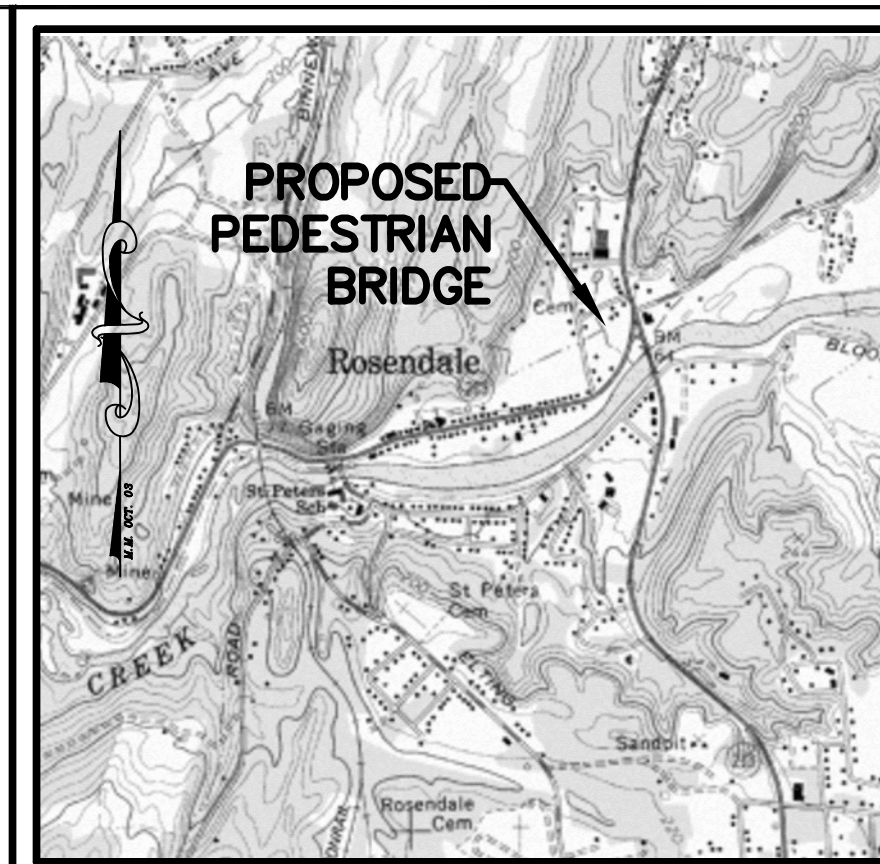
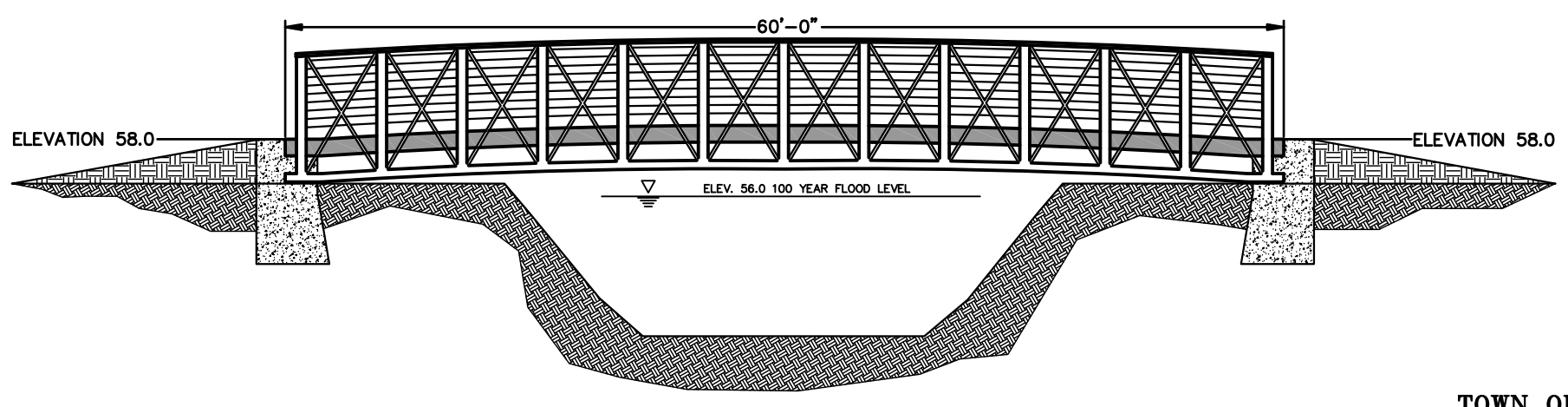


PLAN VIEW
SCALE: 1" = 100'



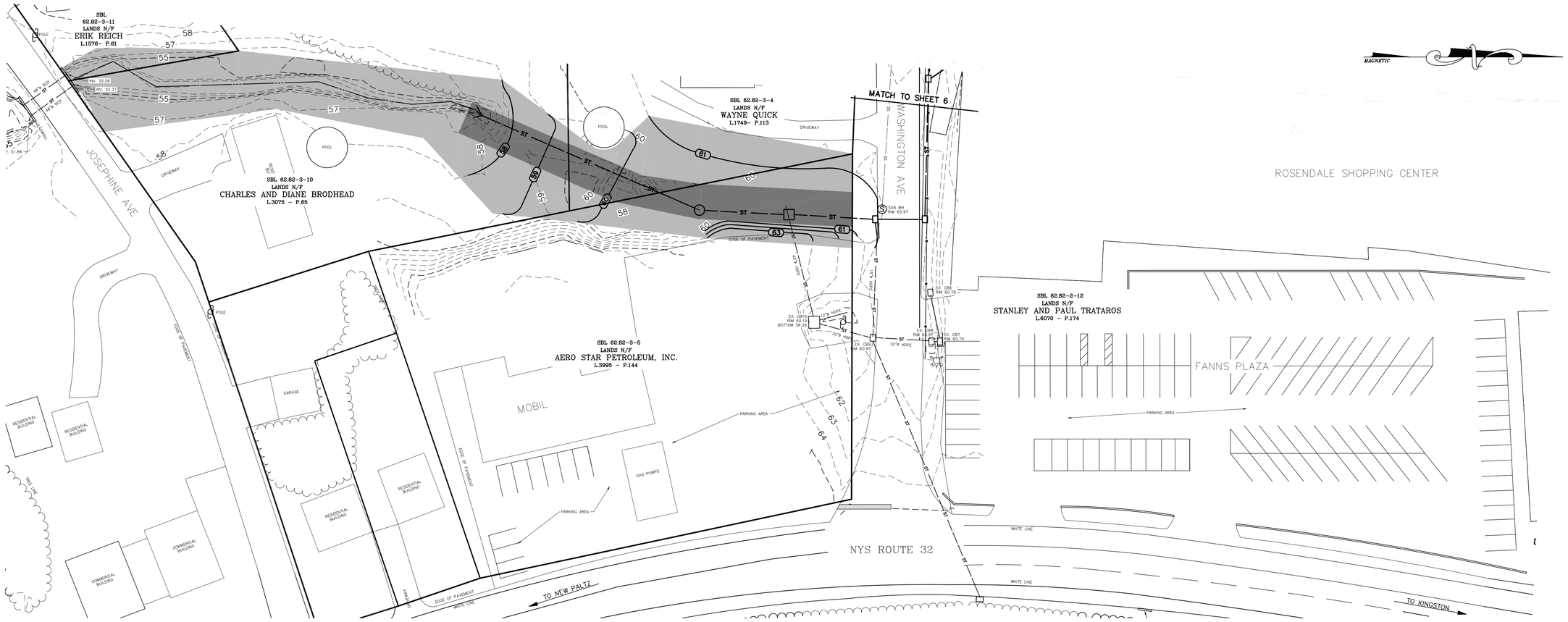
LOCATION MAP
ROSENDALE QUADRANGLE
7.5' MINUTE USGS TOPOGRAPHIC MAP
SCALE: 1" = 2000'



SECTION VIEW A-A
NOT TO SCALE

CHANGE ORDER NO. 1
PEDESTRIAN BRIDGE
WASHINGTON PARK
STORMWATER MITIGATION

TOWN OF ROSENDALE, ULSTER COUNTY, NEW YORK



SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
AERO STAR PETROLEUM INC 62.82-3-5	20' WIDE 0.05 ACRES	WIDTH VARIES 0.07 ACRES
WAYNE QUICK 62.82-3-4	20' WIDE 0.02 ACRES	WIDTH VARIES 0.08 ACRES
CHARLES AND DIANE BRODHEAD 62.82-3-10	20' WIDE 0.03 ACRES	WIDTH VARIES 0.25 ACRES
ERIK REICH 62.82-3-11	NONE	WIDTH VARIES 0.02 ACRES

LEGEND

- 50 — CONTOURS (MINOR)
- 52 — CONTOURS (MAJOR)
- ℄ — PROPERTY LINE
- ST — EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- x — FENCE
- UTILITY POLE
- EX. CB1 — EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- ST — PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- 62 — PROPOSED CONTOUR
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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DRAFT

REQUIRED EASEMENTS
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY

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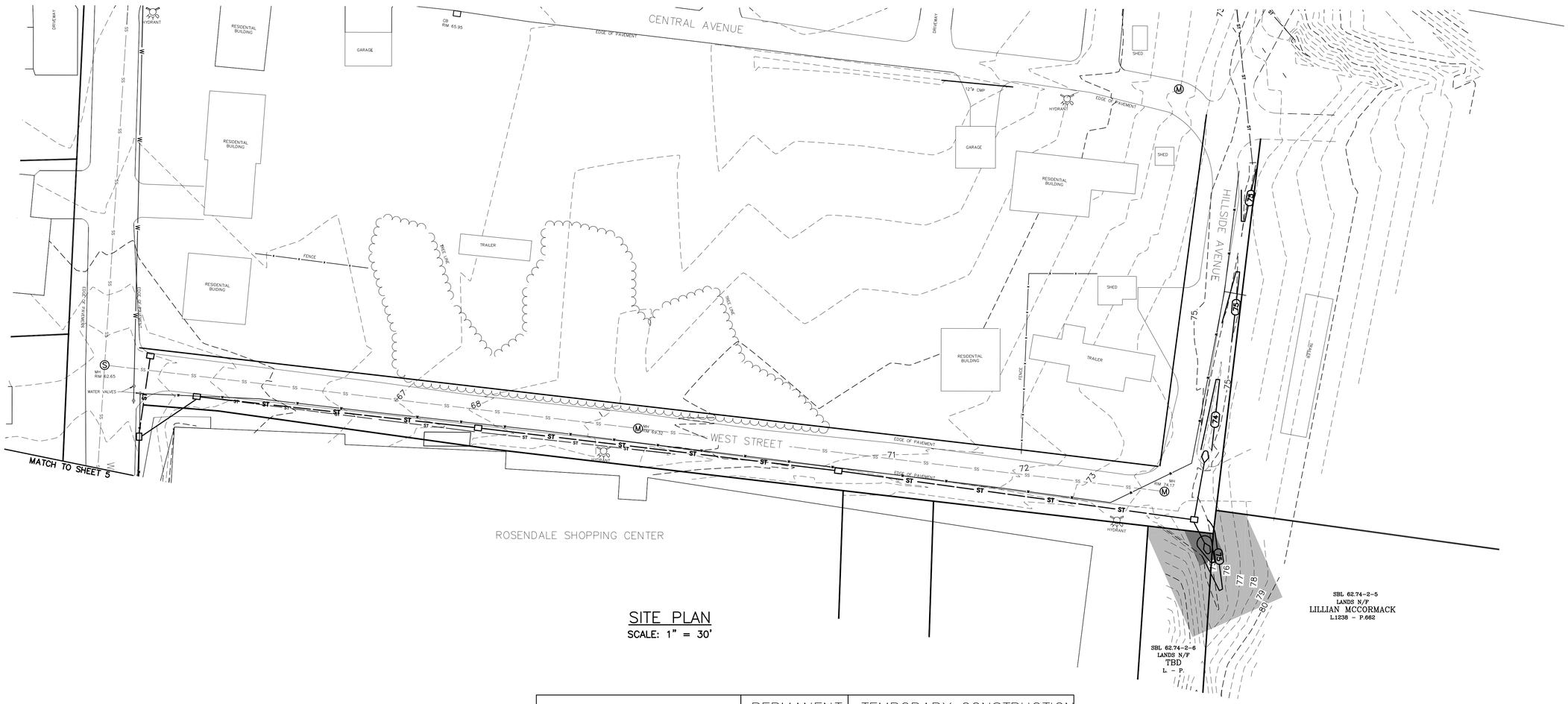
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE	SHEET NO.
1" = 30'	NOV. 2016	1 OF 4
	DWG RJS / CHK	

MAGNETIC



SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
LILLIAN MCCORMACK 62.74-2-5	20' WIDE 0.001 ACRES	WIDTH VARIES 0.04 ACRES
TBD 62.74-2-6	20' WIDE 0.004 ACRES	WIDTH VARIES 0.03 ACRES

DRAFT

REQUIRED EASEMENTS
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EX. CB1 EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR

GRAPHIC SCALE IN FEET

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LICENSED PROFESSIONAL ENGINEER BRIAN M. LARIOS 058741 STATE OF NEW YORK

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	DWG RJS	CHK	

SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
LAMONT VANWEZEMAAL 62.82-1-4	20' WIDE 0.04 ACRES	WIDTH VARIES 0.19 ACRES
WASHINGTON EST. DEV. CORP. 62.82-1-12.100	20' WIDE 0.25 ACRES	WIDTH VARIES 0.38 ACRES
CHARLES AND DIANE BRODHEAD 62.82-1-12.100	NONE	WIDTH VARIES 0.02 ACRES
LAURA AND CAMERON HENDRIX 62.82-1-13	NONE	WIDTH VARIES 0.04 ACRES

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EX. CB1 EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR
- PROPOSED MOUNTAIN SWALE
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

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DRAFT

REQUIRED EASEMENTS
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
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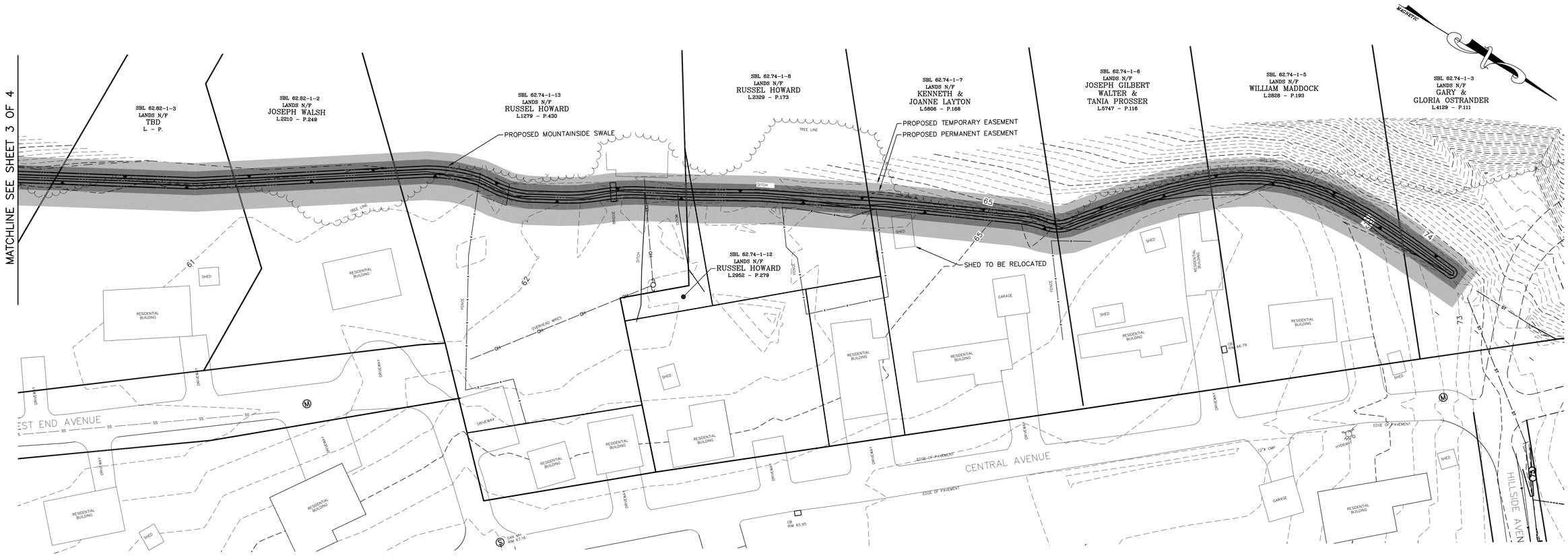
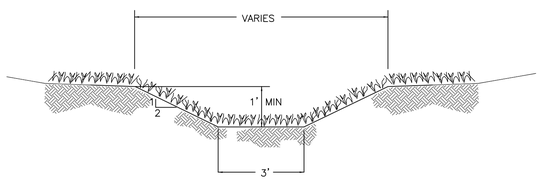


SITE PLAN

SCALE: 1" = 30'



VEGETATION REQUIREMENTS FOR OPEN CHANNELS
SEED MIXTURE SHALL BE TALL FESCUE OR SMOOTH BROMEGRASS (0.45 LBS/1000 SF), KENTUCKY BLUEGRASS (0.6 LBS/1000 SF) OR PERENNIAL RYEGRASS (0.2 LBS/1000 SF). MULCH SEEDED AREAS. FERTILIZE, LIME AND MOW AS NEEDED TO MAINTAIN DENSE PROTECTIVE COVER.

TYPICAL MOUNTAINSIDE SWALE SECTION

NOT TO SCALE

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
TBD 62.82-1-3	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
JOSEPH WALSH 62.82-1-2	15' WIDE 0.03 ACRES	15' WIDE 0.03 ACRES
RUSSELL HOWARD 62.74-1-13	15' WIDE 0.06 ACRES	15' WIDE 0.06 ACRES
RUSSELL HOWARD 62.74-1-12	15' WIDE 0.001 ACRES	15' WIDE 0.002 ACRES
RUSSELL HOWARD 62.74-1-8	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
KENNETH & JOANNE LAYTON 62.74-1-7	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
JOSEPH GILBERT 62.74-1-6	15' WIDE 0.03 ACRES	15' WIDE 0.03 ACRES
WILLIAM MADDOCK 62.74-1-5	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
GARY & GLORIA OSTRANDER 62.74-1-3	15' WIDE 0.02 ACRES	15' WIDE 0.02 ACRES

DRAFT

REQUIRED EASEMENTS
MOUNTAINSIDE SWALE
CONTRACT NO. TR-171

LEGEND

- 50 — CONTOURS (MINOR)
- 52 — CONTOURS (MAJOR)
- R — PROPERTY LINE
- ST — EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- x — FENCE
- UTILITY POLE
- EX. CB1 — EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- ST — PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- 65 — PROPOSED CONTOUR
- PROPOSED MOUNTAIN SWALE
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

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	DWG RJS	CHK	

STORM WATER MANAGEMENT POLLUTION PREVENTION PLAN
FOR
CONSTRUCTION-RELATED ACTIVITIES

WASHINGTON PARK STORMWATER MITIGATION PROJECT
FROM HILLSIDE AVENUE TO JOSEPHINE AVENUE
TOWN OF ROSENDALE, ULSTER COUNTY, NEW YORK

Prepared for:
TOWN OF ROSENDALE
1915 Lucas Avenue
Cottekill, NY 12419
Telephone: 845-658-3159 ext. 3

February 2017

Dennis M. Larios, P.E.

BRINNIER AND LARIOS, P.C.
PROFESSIONAL ENGINEERS
67 Maiden Lane, Kingston, N.Y.

STORM WATER POLLUTION PREVENTION PLAN
CONSTRUCTION-RELATED ACTIVITIES
WASHINGTON PARK STORMWATER MITIGATION PROJECT
FROM HILLSIDE AVENUE TO JOSEPHINE AVENUE
TOWN OF ROSENDALE, ULSTER COUNTY, NEW YORK

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APPENDICES

Appendix 1: Design Report, Washington Park Stormwater Mitigation Project
Appendix 2: Notice of Intent (NOI) for Storm Water Discharges Associated with Construction Activity, MS4 SWPPP Acceptance Form, NYSDEC SPDES General Permit GP-0-15-002 and Notice of Termination
Appendix 3: Final Design Drawings
Appendix 4: Erosion and Sediment Control Drawings
Appendix 5: Construction Site Log Book, Weekly Inspection Form
Appendix 6: New York State Standards and Specifications for Erosion and Sediment Control

STORM WATER POLLUTION PREVENTION PLAN

OWNER'S CERTIFICATION

Project Description: Washington Park Stormwater Mitigation Project

Name of Owner: Town of Rosendale

Address of Owner: 1915 Lucas Avenue
Cottekill, NY 12419
Attn: Jeanne L. Walsh, Town Supervisor

Telephone: 845-658-3159 ext. 3 e-mail: supervisor@townofrosendale.com

"I certify under penalty of law that I understand and agree to comply with the terms and conditions of the stormwater pollution prevention plan for the construction site identified in such plan as a condition of authorization to discharge storm water. I also understand that the operator must comply with the terms and conditions of the New York State Pollution Discharge Elimination System ("SPDES") general permit for storm water discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards."

Authorized Individual: _____

Signature: _____

Title: _____

Date: _____

STORMWATER POLLUTION PREVENTION PLAN

GENERAL CONTRACTOR and SUBCONTRACTOR(s) CERTIFICATION(s)

Project Description: Washington Park Stormwater Mitigation Project, Town of Rosendale

Each Contractor and Subcontractor that will be responsible for installing, repairing, inspecting and/or maintaining the erosion and sediment control practices and post construction stormwater management control practices included in this SWPPP is required to complete and sign this Certification Statement before commencing construction activity at the site. The completed Certification Statement(s) shall be maintained at the construction site in the Site Log Book.

Contracting Firm:

Company Name: _____
Address: _____
_____
Phone Number: _____
Fax: _____

Specific Elements of SWPPP That Contractor/Subcontractor Is Responsible For:

_____
_____
_____

Trained Contractor Responsible for SWPPP Implementation:

Name of Individual: _____
Title: _____
Date of Last Training: _____

CERTIFICATION: "I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement corrective actions identified by the qualified inspector during a site inspection. I also understand that the Owner or Operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") General Permit For Stormwater Discharges From Construction Activity and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings."

Authorized Individual: _____

Signature: _____

Title: _____

Date: _____

1. INTRODUCTION

This Stormwater Pollution Prevention Plan (SWPPP) has been developed in accordance with the New York State Department of Environmental Conservation (NYSDEC) State Pollution Discharge Elimination System (SPDES) General Permit For Stormwater Discharges From Construction Activity Permit No. GP-0-15-002 effective January 29, 2015. The Washington Park Stormwater Mitigation Project is a linear utility project to install underground storm sewers and will not create any new impervious area. The project will disturb approximately 2.29 acres of land.

Per GP-0-15-002, Appendix B, Table 1, since the Washington Park Stormwater Mitigation Project is a linear utility project involving soil disturbances of one (1) or more acres of land but less than five (5) acres of land, a SWPPP that only includes Erosion and Sediment Controls must be prepared. No post-construction stormwater management practices are to be provided with this project.

The project area does not contain any freshwater wetland areas or Federal wetland areas. Located to the south of the project area is the United States Army Corps of Engineers (USACE) Rondout Creek Flood Control Ponding Area.

The following sections discuss the site conditions and the plan for erosion and sediment control at the site.

2. PURPOSE AND METHODOLOGY

The purpose of this Storm Water Pollution Prevention Plan (SWPPP) is to evaluate the impact(s) of the proposed development on the quantity and quality of storm water runoff and to propose measures for minimizing potential related adverse environmental effects. This evaluation has been prepared in accordance with the *New York State Stormwater Management Design Manual (NYSSMDM, January 2015)* and the *New York Standards and Specifications for Erosion and Sediment Controls (Blue Book, November, 2016)*. The objectives of this storm water management plan are as follows:

- prevent the incidence of flooding and flood damage;
- reduce the erosion potential from the new development;
- assure the adequacy of the proposed culverts and drainage channels; and
- decrease nonpoint source pollution and water quality degradation.

A hydrologic and hydraulic analysis of the site was performed to design the proposed storm sewer system improvements. The U.S.D.A. Soil Conservation Service methodology known as Technical Release 55 (TR-55) Urban Hydrology For Small Watersheds (June 1986) was used to calculate the runoff hydrographs. The *HydroCAD* computer software (Version 10.00) developed by Applied Microcomputer Systems was used to model the site runoff and calculate the rates of runoff. The stormwater improvements were designed to handle the peak rates of runoff for a 50 year-24 hour storm event. Site specific 50 year-24 hour design storm depth and rainfall distribution curves were obtained from the Northeast Regional Climate Center web site (http://precip.eas.cornell.edu/). The design results were presented in Design Report, Washington Park Stormwater Mitigation Project (with H&H Study) prepared by Brinnier and Larios, P.C. dated November 2016 which is given in Appendix 1.

3. GENERAL

New York State Phase II storm water management regulations require a discharger of construction waters from disturbances of more than one acre of land to file a Notice of Intent (NOI) and obtain coverage under the New York State Pollution Discharge Elimination System (SPDES) General Permit # GP-0-15-002 for construction activities. The permit requires the preparation of a Storm Water Pollution Prevention Plan (SWPPP). A NOI is provided in Appendix 2 along with a Town of Rosendale MS4 SWPPP Acceptance Form. The NYSDEC General Permit # GP-0-15-002 is given in Appendix 2 along with the Notice of Termination form.

4. PLAN REVIEW

Any applicable Federal, State and local regulatory agencies which have jurisdiction may elect to review this SWPPP and, if necessary, may notify the Owner if the Plan does not comply with the requirements of the regulations. Should the SWPPP need to be revised, the Contractor, Subcontractor, Engineer and the Owner will make the required revisions to the Plan within fourteen (14) days and submit written certification that the changes have been made. This Plan will be kept available at the site for review by regulatory agencies, Engineers, Contractors, etc.

5. PLAN UPDATE

The Contractor, Subcontractor, Engineer or Owner may amend this SWPPP when there is a change in design, construction, operation, or maintenance which has a significant effect on the potential for discharge of pollutants. The SWPPP will also be updated/amended if it is found to be ineffective in minimizing pollutants from storm water discharges. Superseded plans should be marked as such and revision dates will be placed on updated plans and distributed to the appropriate parties. The Owner or Operator shall notify the MS4 in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP. Unless otherwise notified by the MS4, the owner or operator shall have the SWPPP amendments or modifications reviewed and accepted by the MS4 prior to commencing construction of the post-construction stormwater management practice.

6. SITE DESCRIPTION

Existing Conditions:

Washington Park is centrally located in the Town of Rosendale and is bounded by NYS Route 32 on the east, Josephine Avenue on the south, part of Joppenbergh Mountain on the west and Hillside Avenue on the north. The entire Washington Park project area is approximately 27 acres and the proposed construction of the storm sewer improvements will disturb approximately 2.29 acres of land. A description of the existing site conditions and the peak rates of runoff are given in Section II of the Design Report in Appendix 1.

Storm Sewer Improvements:

The culverts and drainage ditches were sized to convey the peak rate of flow from the 50-year storm. The proposed storm sewer improvements were subdivided into three systems as listed and described below:

- Eastern Drainage System
- Western Drainage System
- Mountain Swale

Eastern Drainage System: The Eastern Drainage System is designed to convey the stormwater runoff from Subcatchment Areas E1 and E2. The Eastern Drainage System will include the following elements:

1. A drainage swale along Hillside Avenue;
2. Construction of a new storm sewer along West Street (from Hillside Avenue to Washington Avenue);
3. Construction of a new storm sewer on Washington Avenue (from West Street to where it crosses under Washington Avenue);
4. Construction of a new storm sewer from Washington Avenue to the USACE ponding area;
5. The USACE ponding area swale was recently cleaned by the Town of Rosendale Highway Department.

The layout of the proposed Eastern Drainage System is shown on Sheets 6 and 7 of the Final Design drawing set given in Appendix 3. Elements 1, 2 and 3 are located within the Town right-of-way for the various roads. Element 4 crosses through private properties. The proposed Eastern Drainage System is comprised of:

- 242 linear feet (LF) of 48” diameter HDPE culvert pipe
- 12 LF of 42” diameter HDPE culvert pipe
- 741 LF of 24” diameter HDPE culvert pipe
- 89 LF of 18” diameter HDPE culvert pipe
- 56 LF of 12” diameter HDPE driveway culvert
- Nine catch basins
- One storm sewer manhole

The ground surface along the entire Eastern Drainage System will be restored back to its existing condition. No new impervious area will be created as part of these drainage improvements.

Western Drainage System: The Western Drainage System is designed to convey the stormwater runoff from Subcatchment Area E3. The Western Drainage System construction of new storm sewers from SBL# 62.82-1-4 (37 West End Avenue) to the USACE ponding area on the south side of Josephine Avenue. The layout of the proposed Western Drainage System is shown on Sheet 10 of the Final Design drawing set given in Appendix 3. The proposed Western Drainage System is comprised of:

- 501 LF of dual 30" diameter HDPE culvert pipes
- 201 LF of 18" diameter HDPE culvert pipe
- 45 LF of 12" diameter HDPE driveway culvert pipe
- Ten catch basins

The ground surface along the entire Western Drainage System will be restored back to its existing condition. No new impervious area will be created as part of these drainage improvements.

Mountain Swale: The location of the proposed mountain drainage swale is shown on Sheet 12 of the Final Design drawing set given in Appendix 3. The proposed mountain drainage swale crosses through nine private properties. The proposed mountain swale is a grass lined swale with a bottom slope that ranges from 1.5% to 7%. No new impervious area will be created as part of this drainage improvement.

7. DESCRIPTION OF ACTIVITIES

Soil disturbing activities for the project include: selective demolition, a minor amount of clearing and grubbing, trenching & excavation for stormwater collection and conveyance, construction of stabilized construction entrance if necessary, temporary inlet and outlet protection, and installation of silt fence to control erosion and sedimentation generated during construction.

For purposes of this document, "clearing" is defined as removing from the site trees, brush, shrubs, down timber, rotten wood, rubbish, and other vegetation, as well as removing fences and incidental structures. "Grubbing" is defined as completely removing from the ground all stumps one inch diameter and larger, roots and stubs and debris. Under this item, roots exceeding one inch diameter are to be removed to a depth of 24 inches below grade. Potential construction related water quality impacts may include:

1. Increased turbidity due to silt, sediments, clays and dust;
2. Increased odors;
3. Potential for oils, greases and fuels entering stormwater from machinery or spills;
4. Solid wastes due to litter;
5. Potential for concrete leachate spillage entering stormwater.

The sequence of major activities which disturb soils is as follows:

1. Installation of erosion and sediment controls;
2. Installation of stabilized construction entrance as necessary if construction equipment has to travel from unpaved areas onto Town roads;
3. Clearing and grubbing, including stockpiling of topsoil;
4. Selective demolition to remove existing storm sewers that are being replaced;
5. Importing fill, grading and construction of building pad and parking areas;
6. Construction of storm sewer systems;
7. Stabilization of disturbed areas;
8. General cleanup and removal of sediment.

8. EROSION AND SEDIMENT CONTROL PLAN

The erosion and sediment control plan for the Washington Park Stormwater Mitigation Project has been developed in accordance with the NYSSMDM and the Blue Book. Please refer to the attached Erosion and Sediment Control Plan and Details given on Sheets 14, 15 and 16 along with the following measures and best management practices to be implemented to abate and control potential pollutants in stormwater discharges during construction:

1. Site disturbance during construction shall be limited to only the necessary grading the building and parking areas, footing trenches and infiltration basin as shown on the plan.
2. Gravel stabilized construction entrance/exit pad to minimize soil disturbance and movement.
3. Silt fences to be located down-gradient of areas of stormwater sheet flow around temporary stockpiles, around catch basins, and as shown on plans.
4. Temporary swales to divert stormwater flows from disturbed areas.
5. Silt fences as erosion checks within swales and ditches.
6. Temporary stabilization of disturbed portions of the site, planned to be left inactive for more than 14 days, by temporary seed and mulch (between April 1 and September 15) or by other cover such as tarping or mulching. Temporary seed shall consist of ryegrass, applied at the rate of 30 pounds per acre. Prior to seeding fertilize with 500 pounds of 5-10-5 or equivalent per acre. Mulch with hay or straw at the rate of 1.5 - 2.5 tons per acre.
7. After grading, temporary berms and swales shall be installed to divert runoff from newly graded areas to control erosion until permanent ground cover has been established.
8. Preserve all large and healthy trees (i.e. greater than 12 inches in diameter) where their removal is not necessary to construction of the project.
9. Placement of erosion control mat on slopes in excess of 3:1 (i.e. three feet horizontal to one foot vertical) control potential slope erosion.

Project plans contain technical material and performance specifications including details of installation and maintenance to be utilized in the construction and maintenance of erosion control facilities. Inspection of erosion control facilities shall be required to assure maximum adherence to the intent and letter of this SWPPP. Quality assurance and quality control measures will be continued throughout the duration of construction activities to repair and/or replace the mitigation measures installed on the site.

9. ADDITIONAL STORM WATER CONTROLS

• ***Waste materials*** shall be collected and stored in covered containers and/or dumpsters. Dumpsters shall meet local and State solid waste management regulations. Trash and debris from the site shall be hauled to an approved sanitary landfill. Personnel shall be instructed regarding the correct procedure for waste disposal. The site superintendent shall be responsible for assuring that these procedures are followed.

• ***Hazardous Waste*** materials shall be kept in original containers unless they are not re-sealable. Original labels and material safety data will be retained. Hazardous materials shall be disposed of in the manner specified by local and State regulations and in accordance with manufacturer's recommendations. The site superintendent shall be responsible for assuring that these procedures are followed.

• ***Petroleum*** products shall be stored in tightly sealed containers which are clearly labeled. All onsite vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage.

• ***Fertilizers*** will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to storm water. Storage will be in a covered area. The contents of any partially used bags of fertilizer will be transferred to sealable plastic bin to avoid spills.

• ***Spills*** shall be cleaned up immediately after discovery. Manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies. Spills of toxic or hazardous material will be reported to the appropriate State or local government agency.

• ***Sanitary waste*** shall be collected from portable units a minimum of once a week by a licensed sanitary waste management contractor or as required by local regulation.

• ***Vehicle tracking*** sediment on public roadways shall be swept on a daily basis. Dump trucks hauling material from the construction site shall be covered with a tarpaulin. No washing of trucks or equipment on site shall be permitted.

• ***Good housekeeping*** practices shall be followed on site during the project, including:

1. Storage of materials in neat, orderly manner in their appropriate containers and, if possible, under roof or other enclosure.

2. Storage of only enough products on site required to do the job.
3. Storage of products in their original containers with original manufacturer's labels.
4. Whenever possible, all of a product shall be used up before disposing of the container.
5. Following of manufacturer's recommendations for proper use and disposal.
6. Substances shall not be mixed with one another unless recommended by the manufacturer.
7. Proper use and disposal of materials.

10. SITE ASSESSMENTS AND INSPECTIONS

The Owner or Operator must ensure that all erosion and sediment control practices identified in the SWPPP are maintained in effective operating condition at all time in accordance with Part IV of SPDES General Permit GP-0-15-002. See Appendix 5.

Inspection of erosion control facilities shall be required to assure maximum adherence to the intent and letter of this Plan. Inspections shall be conducted by a qualified inspector once at least every 7 calendar days and in accordance with the requirements in the most current version of the technical standard, New York State Standards and Specifications of Erosion and Sediment Control. At a minimum, the qualified inspector shall inspect all erosion and sediment control practices to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with this plan, all areas of discharge to natural surface waterbodies located within or immediately adjacent to the property boundaries or the construction site and all points of discharge from the construction site. Subsequent to each inspection the inspector shall prepare an inspection report which shall include and/or address the following:

1. Date and time of inspection;
2. Name and title of person performing inspection;
3. A description of the weather and soil conditions at time of the inspection;
4. A description of the condition of runoff at all points of discharge from the construction site. This shall include identification of any discharges of sediment from the construction site. Include discharges from conveyance system (pipes, culverts, ditches) and overland flows;
5. A description of the condition of all natural surface waterbodies located within or immediately adjacent to the property boundaries of the construction site which receive runoff from the disturbed areas. This shall include identification of any discharges of sediment to the surface waterbody;
6. Identification of all erosion and sediment control practices that need repair or maintenance, record approximate degree of sediment accumulation;
7. Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;
8. Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection;

9. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with this plan and technical standards;
10. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s); and
11. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The qualified inspector shall attach paper color copies of the photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The qualified inspector shall also take digital photographs, with date stamp, that clearly show the condition of the practices after corrective action has been completed. The qualified inspector shall attach paper color copies of the photographs to the inspection report that documents the completion of the corrective action within seven (7) calendar days of the date of the inspection.

Suggested field inspection forms are attached in Appendix 4.

Contractor Notification:

Within one business day of the completion of an inspection, the qualified inspector shall notify the owner/operator and appropriate contractor or subcontractor of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

Log Book:

The owner/operator shall maintain a record of all inspection reports in a site log book. The site log book shall be maintained on site and be made available to the permitting authority upon request. Prior to the commencement of construction:

The owner/operator shall certify in the site log book that the SWPPP, prepared in accordance with Part III. of this permit, meets all Federal, State and local erosion and sediment control requirements. The operator shall post at the site, in a publicly-accessible location, a summary of the site inspection activities on a monthly basis.

Prior to filing of the Notice of Termination, the owner/operator shall have a qualified inspector perform a final site inspection. The qualified inspector shall certify that all disturbed areas have achieved final stabilization; and all temporary, structural erosion and sediment control measures have been removed; and that all post construction stormwater management practices have been constructed in conformance with SWPPP by signing the “Final Stabilization” and “Post-Construction Stormwater Management Practice” certification statements on the NOT.

The owner/operator shall certify that the requirements of Part V.A.4.of this permit have been satisfied prior to submission of the Notice of Termination.

11. INVENTORY FOR POLLUTION PREVENTION PLAN

It is anticipated that the following materials will be present on site during the project:

- Petroleum based products for fueling construction equipment

12. PLAN IMPLEMENTATION

The owner/operator shall ensure that the provisions of the SWPPP are implemented from the commencement of construction activity until all areas of disturbance have achieved final stabilization and the Notice of Termination (NOT) has been submitted to the address referenced in Part II.A.1 of the this permit.

The owner/operator must keep the SWPPP current so that it, at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site.

The owner/operator must identify the contractors and subcontractors that will be responsible for installing, constructing, repairing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and responsible for the construction of all post-construction stormwater management practices included in the SWPPP. The owner/operator shall have each contractor and sub-contractor identify at least one 'trained individual' from their company that will be responsible for implementation of the SWPPP. The owner/operator shall ensure that at least one trained individual is on site on a daily basis when soil disturbance activities are being performed.

Each contractor and subcontractor shall certify to the understanding and agreement to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. Also comply with the terms and conditions of the New York State Pollutant Discharge Elimination System (SPDES) general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards.

The owner or operator must, prior to submitting the NOT, ensure that for post-construction Stormwater management practices that are privately owned, the owner or operator has modified their deed of record to include a deed covenant that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

13. RETENTION OF RECORDS

The following documents shall be retained for a period of three years from the date the site is finally stabilized:

1. Notice of Intent, Transfer or Termination
2. Notice of Intent Acknowledgement Letter

3. Storm Water Pollution Prevention Plan
4. Reports and inspections generated during implementation of the Plan
5. Contractor certifications

14. DEVIATION FROM NYSDEC REQUIREMENTS

The stormwater management approach described in this SWPPP complies with the requirements of the *New York State Stormwater Management Design Manual (January 2015).* No Waivers are requested.

APPENDIX 1

DESIGN REPORT

WASHINGTON PARK STORMWATER MITIGATION PROJECT

67 Maiden Lane
Kingston, New York 12401
845.338-7622
845.338.7660 fax

Brinnier & Larios, P.C.

Design Report

With H&H Study

November 2016

Funding By:
CDBG Grant
Through N.Y. Rising

Dennis M. Larios, P.E.

Washington Park Stormwater Mitigation Project

Town of Rosendale

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FIGURES:

Figure 1 – Site Map

Figure 2 – Watershed Boundary

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Appendix A – USDA Soils Report of Drainage Area

Appendix B – Hydrologic Model Outputs and Hydraulic Calculations

Appendix C – 30% Design Drawings

I. PURPOSE AND SCOPE

The Town of Rosendale retained Brinnier and Larios, P.C. to prepare the design of a stormwater mitigation system for the Washington Park area in the Town of Rosendale, Ulster County, New York. An aerial map of Washington Park is given on Figure 1. The site is located on the west side of NYS Route 32 near Latitude 42º 50' 55" N and Longitude 74º 4' 34" W. Washington Park encompasses an area of approximately 25 acres with sixty-nine residential buildings. Located on the northeast side of Washington Park is the Fanns Plaza. The southern side of the project area borders a flood control ponding area that was constructed as part of the Rosendale Flood Control Project by the United States Army Corps of Engineers (USACE) in the 1960's.

The Washington Park area has been subjected to chronic flooding problems during large rain events.

The Town of Rosendale Town Code requires storm sewers to be designed in accordance with the standards of the Superintendent of Highways (Section 60-35). The Town of Rosendale Superintendent of Highways typically requires culverts to convey a minimum of a 25 year design storm. The New York State Department of Transportation Highway Design Manual, Chapter 8, Highway Drainage recommends that drainage structures and channels for local roads be designed to convey a 50 year design storm. Based on the criteria listed above, the Washington Park stormwater mitigation culverts and channels will be designed to convey the 50 year storm event.

This design report includes the hydrology and hydraulic study (H&H Study) for the storm sewer replacement. The design report is organized into seven sections as follows:

Section I	–	Purpose and Scope
Section II	–	Existing Conditions
Section III	–	Hydrologic and Hydraulic Study
Section IV	–	Stormwater Mitigation Design and Sizing
Section V	–	Permitting
Section VI	–	Schedule
Section VII	–	Opinion of Probable Costs
Section VIII	–	Summary and Recommendations

II. EXISTING CONDITIONS

A. Site Description

Washington Park is residential area in the Town of Rosendale with sixty-nine residences that are a combination of single family residential buildings and manufactured homes. Lot sizes are a third of an acre or smaller and are served with public water and public sanitary sewers. The Fanns Plaza is located on the northeast side of Washington Park. The Washington Park road network includes Washington Avenue, Central Avenue, Josephine Avenue, West End Avenue, and West Street and Hillside Avenue.

Washington Park is situated at the base of a hill. The land within Washington Park generally slopes from north to south with ground surface elevations that range from 75 feet to approximately 60 feet. The slope of the ground ranges from 2 percent to 5 percent.

There are no classified streams or waterbodies that cross Washington Park. There are two defined drainageways that cross through the Washington Park site. The runoff from the hill/mountain to the northeast and runoff from the Fanns Plaza are conveyed by storm sewers to the USACE ponding area located on the south side of the site (hereafter referred to as the Eastern Drainage System). The runoff from the hill/mountain to the west is conveyed via a swale at the base of the mountain to a storm sewer system that crosses under West End Avenue and Josephine Avenue to the USACE ponding area on the west side of Central Avenue (hereafter referred to as the Western Drainage System).

B. Watershed Area

The total watershed area that drains to and through Washington Park is shown on Figure 2. The total watershed area draining to Washington Park is 263.5 acres in size. The watershed area is subdivided into the three subcatchment areas labeled on Figure 1 as E1, E2 and E3 as described below.

Subcatchment E1 includes the runoff that flows along the NYS Route 32 hill and the runoff from the Fanns Plaza parking area. Subcatchment E1 extends all the way to the Breezy Hill Road-Hickory Bush Road intersection to the north. The area of Subcatchment E1 is 218.0 acres and the different types of land cover are summarized in Table 1. The NYSDOT installed a catch basin at the bottom of the NYS Route 32 hill along with culvert piping to Washington Avenue which directs the NYS Route 32 runoff into the Eastern Drainage System. The East Drainage System includes a collection of catch basins and pipes on West Street and Washington Avenue which discharge to a 36" corrugated metal pipe (CMP) that discharges to an open swale which then drains to the USACE ponding area.

Subcatcment E2 is the area which drains to Hillside Avenue and West Street. The drainage area is a combination of woods, residential area and the runoff from half of the roof of the Fanns Plaza building. The area of Subcatchment E2 is 12.3 acres and the different types of land cover are summarized in Table 1.

Subcatchment E2 drains southward on West Street and then along Washington Avenue where it combines with runoff from Subcatchment E1.

Subcatchment E3 is the area which drains to West End Avenue and the area which drains to Josephine Avenue and ultimately discharges to the USACE ponding area on the west side of Central Avenue. The area of Subcatchment E3 is 33.2 acres and the different types of land cover are summarized in Table 1. Runoff from Subcatchment E3 collects at the base of the hill/mountain in a swale which, over the years, has not been maintained or has been partial filled in and flows southward to a drainage ditch located on SBL# 62.82-1-4 (37 West End Avenue). This drainage ditch flows to a storm sewer system which crosses under West End Avenue and discharges to an open swale and then to a 30 inch diameter CMP under Josephine Avenue and discharges to the USACE ponding area. This drainage system is referred to as the Western Drainage System in this report.

Table 1. Subcatchment Area Parameters

Parameter	Subcatchment Area (acres)		
	E1	E2	E3
Total Watershed Area	218.0	12.3	33.2
Impervious Area	9.0	1.3	0.6
Woods	162.4	8.4	24.5
1/3 Acre Lots or Smaller Area	46.5	2.6	8.0

C. Soils

Information on the soil types in the watershed area was obtained from a USDA Soil Resource Report, which is included in Appendix A. The report indicates seven different soil types in this area. The Washington Park area has primarily Unadilla silt loam or Raynham silt loam soils. The Unadilla silt loam is classified as hydrologic soil group B soils which have a good infiltration rate. The remainder of the watershed areas soils are classified as hydrologic soil group C and D soils which have low infiltration rates.

D. Streams and Wetlands

There are no classified streams in the Washington Park area or the watershed area. The Rondout Creek is located to the south of Washington Park.

There are no Federal or State wetland areas located in the Washington Park area. The USACE ponding areas located on the south side of Washington Park are classified as PEM1Ah Federal wetland areas but the proposed new storm sewers do not extend into the USACE ponding area.

III. HYDROLOGIC AND HYDRAULIC STUDY

A. Methodology Used

The hydrologic and hydraulic study of the watershed areas contributing storm runoff to the Washington Park area was performed using the computer program entitled HydroCAD (version 10) computer software developed by HydroCAD Software Solutions LLC. HydroCAD utilizes the U.S.D.A. Soil Conservation Service hydrologic methodology known as the Technical Release 55 (TR-55), Urban Hydrology for Small Watersheds for determining the peak rates of stormwater runoff. The watershed was modeled as three subcatchment areas as described in Section IIB. The complete HydroCAD output including runoff hydrographs can be found in Appendix B.

B. Design Storms

As described in Section I, the stormwater mitigation system will be designed to handle a 50 year storm event. The 50 year design storm rainfall amount and distribution for Washington Park was obtained from the Cornell University Northeast Regional Climate Center (NRCC) precipitation database (http://precip.eas.cornell.edu/). This database provides site-specific design storms. For more accurate modeling of the hydraulic conditions at the site. The 24-hour rainfall depth for the design storm is shown below in Table 2.

Table 2. Design Storm Rainfall Depth

Design Storm	Rainfall Depth
50-year	7.03 inches

C. Hydrologic Analysis

The site specific parameters of each of the subcatchment areas as listed in Table 1 were input into the hydrologic model. The runoff curve numbers were selected based on the type of ground cover, hydrologic condition and hydrologic soil group. The time of concentration for runoff to travel from the most distant point of the watershed to the point of interest was determined using the USGS topographic information and is shown on Figure 1. The HydroCAD report given in Appendix B lists the input parameters assigned to each of the subcatchment areas.

The calculated 50 year design storm peak rates of runoff for each of the subcatchment areas are listed in Table 3.

Table 3. 50 Year Storm Peak Rate of Runoff

Subcatchment Area	Peak Runoff (cfs)
E1	119(1)
E2	18(1)
E3	40(1) 25(2)

Notes:
1. Instantaneous peak flow rate. This instantaneous peak flow occurs for only a few minutes duration.
2. Three hour weighted average peak flow rate.

The runoff hydrographs for each subcatchment area are given in Appendix B.

D. Hydraulic Analysis

The HydroCAD model was configured with the major drainage structures in the each subcatchment area to simulate the drainage channels and culverts. Using the HydorCAD model, the sizing of the drainage structures was adjusted as needed until the drainage structure was capable of conveying the 50 year design storm flow condition.

The capacity of a pipe flowing full was calculated using Mannings Equation as follows:

$$Q = V \times A = \frac{1.49}{n} \times R^{2/3} \times S^{1/2} \times A$$

where:
n = Manning roughness coefficient
= 0.012 for HDPE smooth interior pipe
R = hydraulic radius = cross sectional area / wetted perimeter
S = slope of the pipe
A = cross sectional area

The culvert capacity for different sized culverts at different slopes is outlined in Table 4.

Table 4. Hydraulic Capacity of Fully Flowing Culvert

Pipe Diameter	Minimum Slope	Culvert Capacity	Comments
Eastern Drainage System			
18 inch	1.67%	15 cfs	Too small for E2 50 year flow
24 inch	1.00%	25 cfs	OK for E2 50 year flow
36 inch	0.65%	58 cfs	OK for E2 50 year flow
48 inch	0.65%	126 cfs	OK for E1+E2 50 year flow
Western Drainage System			
24 inch	0.10%	8 cfs	Too small for E3 50 year flow
30 inch	0.10%	14 cfs	Requires two culvert pipes to convey E3 50 year flow three hour weighted average peak flow
36 inch	0.10%	23 cfs	Pipe diameter is too large for the flat site conditions and would not allow for adequate cover over the pipe.

IV. STORMWATER MITIGATION DESIGN AND SIZING

The culverts and drainage ditches were sized to adequately convey the discharge from the 50-year storm. The HydroCad model was used to evaluate different sized culverts including 18", 24", 36" and 48" diameter culvert pipes. The proposed drainage systems are described below.

Eastern Drainage System

The Eastern Drainage System is designed to convey the stormwater runoff from Subcatchment Areas E1 and E2. The Eastern Drainage System will include the following elements:

1. A drainage swale along Hillside Avenue;
2. Construction of a new storm sewer along West Street (from Hillside Avenue to Washington Avenue);
3. Construction of a new storm sewer on Washington Avenue (from West Street to where it crosses under Washington Avenue);
4. Construction of a new storm sewer from Washington Avenue to the USACE ponding area;
5. The USACE ponding area swale was recently cleaned by the Town of Rosendale Highway Department. As part of this project, the USACE ponding area swale will be regraded to provide a uniform alignment and cross sectional area that is consistent with the original USACE Rondout Creek Flood Control design.

Elements 1, 2 and 3 listed above will be sized to convey the peak rate of runoff from Subcatchment Area E2 (18 cfs). Based on the initial layout of the storm sewer system, the minimum slope of Elements 1, 2 and 3 is a 1.00% and therefore the pipe diameter required to convey the peak E2 flow of 18 cfs would be a 24" diameter pipe.

Element 4 listed above will be sized to convey the peak runoff of the combined flows from Subcatchment Area E1 (18 cfs) plus the Subcatchment Area E2 flow (119 cfs). Based on the initial layout of the storm sewer system, the minimum slope of Element 4 is 0.65% and therefore, the pipe diameter required to convey the peak E1+E2 flow of 122 cfs would be a 48" diameter pipe.

The layout of the proposed Eastern Drainage System is shown on Sheets 5 and 6 of the 30% drawing set given in Appendix C. The proposed Eastern Drainage System is comprised of:

- 181 linear feet (LF) of 48" diameter HDPE culvert pipe
- 46 LF of 36" diameter HDPE culvert pipe
- 745 LF of 24" diameter HDPE culvert pipe
- 46 LF of 18" diameter HDPE culvert pipe
- Nine catch basins
- One storm sewer manhole

Western Drainage System

The Western Drainage System is designed to convey the stormwater runoff from Subcatchment Area E3. The Western Drainage System includes the following elements:

1. A drainage swale along the mountainside from the intersection of Central Avenue and Hillside Avenue to SBL# 62.82-1-4 (37 West End Avenue).
2. Construction of a new storm sewer from SBL# 62.82-1-4 (37 West End Avenue) to the USACE ponding area on the south side of Josephine Avenue.

The area between West End Avenue and the USACE ponding area is essentially flat with little to no topographic relief. The design of a storm sewer system can only accommodate approximately six inches of elevation change between the inlet and outlet of the storm sewer system which will be approximately 500 feet long (slope = 0.5ft/500 ft = 0.1%).

Other design considerations for the Western Drainage System are the minimizing of the required cover over top of the pipes and preventing floatation of the pipes. The minimum required cover for HDPE pipes is typically twelve inches of soil material. Geotextile products can be utilized to provide an equivalent bearing capacity when less than twelve inches of cover is used. Installing a Mirafi RS380i geotextile with 6.5 inches of cover will provide an equal unreinforced Structural Number of 4.7 for pavement applications (see Flexible Pavement Analysis Report in Appendix B). A shallow groundwater table level and the corrugated ribs of the HDPE pipe can contribute to floatation forces on a culvert. To address this concern, the Western Drainage System will be designed with a filter fabric lined trench and one perforated 30" HDPE pipe to provide positive relief of any potential shallow groundwater levels. Shallow groundwater would drain by gravity through both a one foot thick stone layer under the pipe and the perforated pipe. A detail of the proposed culvert trench for the Western Drainage System is shown on Sheet 10 of the 30% design drawings.

The calculated runoff hydrograph from the mountainside drainage swale in Subcatchment E3 has the characteristic Type II runoff spike near hour 13.5 of the 24 hour storm. To design for the instantaneous peak runoff rate of 40 cfs, a storm sewer system with three (3) 30 inch diameter HDPE pipes at 0.1% slope would be required. Installation of three (3) 30 inch diameter HDPE culvert pipes is not practical for this area when consideration is given to the observed temporary ponding conditions (a matter of a few hours) that result with the existing single 18" diameter and single 30" diameter storm sewers. The three hour weighted peak flow rate (between hours 12.5 and 15.5 of the 24 hour storm) from the mountainside drainage swale in Subcatchment E3 was calculated to be 25 cfs. For purposes of designing the stormwater mitigation for the Western Drainage System, the culvert system will be sized to convey a minimum of the three hour weighted peak flow rate of 25 cfs. The three hour weighted peak flow rate of 25 cfs can be handled with two (2) 30" diameter HDPE culvert pipes which have a combined fully flowing pipe capacity of 28 cfs.

The layout of the proposed Western Drainage System is shown on Sheet 8 of the 30% drawing set given in Appendix C. The proposed Western Drainage System is comprised of:

- 1,002 LF of 30" diameter HDPE culvert pipe (dual culvert 501 LF)
- Five catch basins

The location of the proposed mountainside drainage swale is shown on Sheets 11 and 12 of the 30% drawing set given in Appendix C. The proposed mountainside drainage swale crosses through nine private properties. Temporary construction easements and permanent drainage maintenance easements will have to be obtained as described in Section V.

V. PERMITTING

The storm sewer replacement project will disturb more than one acre of land and therefore, the construction activity will require coverage under NYSDEC Permit GP-0-15-002.

The East and West Drainage Systems collect and convey runoff from unclassified, intermittent streams. Therefore no NYSDEC stream disturbance permits are required.

The discharge point of the East and West Drainage Systems will be to existing drainageways that flow into the USACE ponding area. There will be no construction activity performed within the USACE ponding area. The plans should be sent to USACE to confirm that there are no jurisdictional requirements from USACE.

There are no Federal or NYSDEC Freshwater Wetland areas in the Washington Park project area. Therefore no wetland permitting is required.

The portion of the proposed work that is being done in Town roads is for the Town of Rosendale and approval of the plans by the Town is equivalent to obtaining a Town road work permit.

The proposed work will encroach on several private properties. Permanent easements for long term operation and maintenance of the drainage systems will have to be obtained. Temporary construction easements will have to be obtained for any work that will extend beyond the boundary of the permanent easement. Listed below are the properties where permanent and temporary construction easements will be required:

Table 5. Easements Required

SBL#	Location	Property Owner Name
Eastern Drainage System		
62.82-3-5	1149 Route 32	Aero Star Petroleum, Inc
62.82-3-4	9 Washington Avenue	Wayne Quick
62.82-3-10	12 Josephine Avenue	Charles & Diane Brodhead
Western Drainage System – from West End to Josephine Avenue		
62.82-1-4	37 West End Avenue	Lamont VanWezemaal
62.82-1-12.110	From West End Avenue to Josephine Avenue	Washington Estate Development Corp.
62.82-1-12.400	32 Josephine Avenue	Charles & Diane Brodhead
62.82-1-13	25 Josephine Avenue	Laura Hendrix

Western Drainage System – Mountain Swale		
62.82-1-4	37 West End Avenue	Lamont VanWezemaal
62.82-1-12.110	From West End Avenue to Josephine Avenue	Washington Estate Development Corp.
62.82-1-3		
62.82-1-2	45 West End Avenue	Joe Walsh
62.74-1-13	47 West End Avenue	Russell Howard
62.74-1-8	47 West End Avenue	Russell Howard
62.74-1-7	67 Central Avenue	Kenneth Layton
62.74-1-6	73 Central Avenue	Joseph Gilbert
62.74-1-5	75 Central Avenue	William Maddock

Construction of the mountainside drainage swale along Central Avenue and West End Avenue may require the removal of some trees. The tree removal areas should be surveyed for the presence of Indiana Bat habitat. If it is determined that Indiana Bats habitat is present at the site, tree clearing activities must be performed between October 31 and March 31 and is restricted outside of this time period.

The Governor's Office of Storm Recovery (GOSR) will complete an environmental review of the project area including determining the presence of any threatened or endangered animals, archeological sites and critical environmental areas.

VI. SCHEDULE

The estimated duration for construction of the proposed stormwater mitigations systems is as follows:

- Obtaining all necessary temporary construction easements and permanent drainage maintenance easements – 6 months

- Tree clearing and selective demolition activities – 1 month. If NYSDEC determines that the project site is habitat for Indiana Bats, then tree removal must be performed between October 31 and March 31.

- Culvert installation construction – approximately 3 to 4 months

The overall construction activity should take from 4 to 5 months to complete. The proposed Washington Park Stormwater Mitigation systems can be constructed anytime during the normal construction period of May through December.

VII. OPINION OF PROBABLE COST

An opinion of probable costs for construction of the Washington Park Stormwater Mitigation systems is given in Table 6. The opinion of probable cost is based on the Town contracting out the work at prevailing wage rates. The opinion of probable cost is $642,000.00.

Table 6

Opinion of Probable Construction Costs @ 30% Design

Washington Park Stormwater Mitigation Project

Town of Rosendale

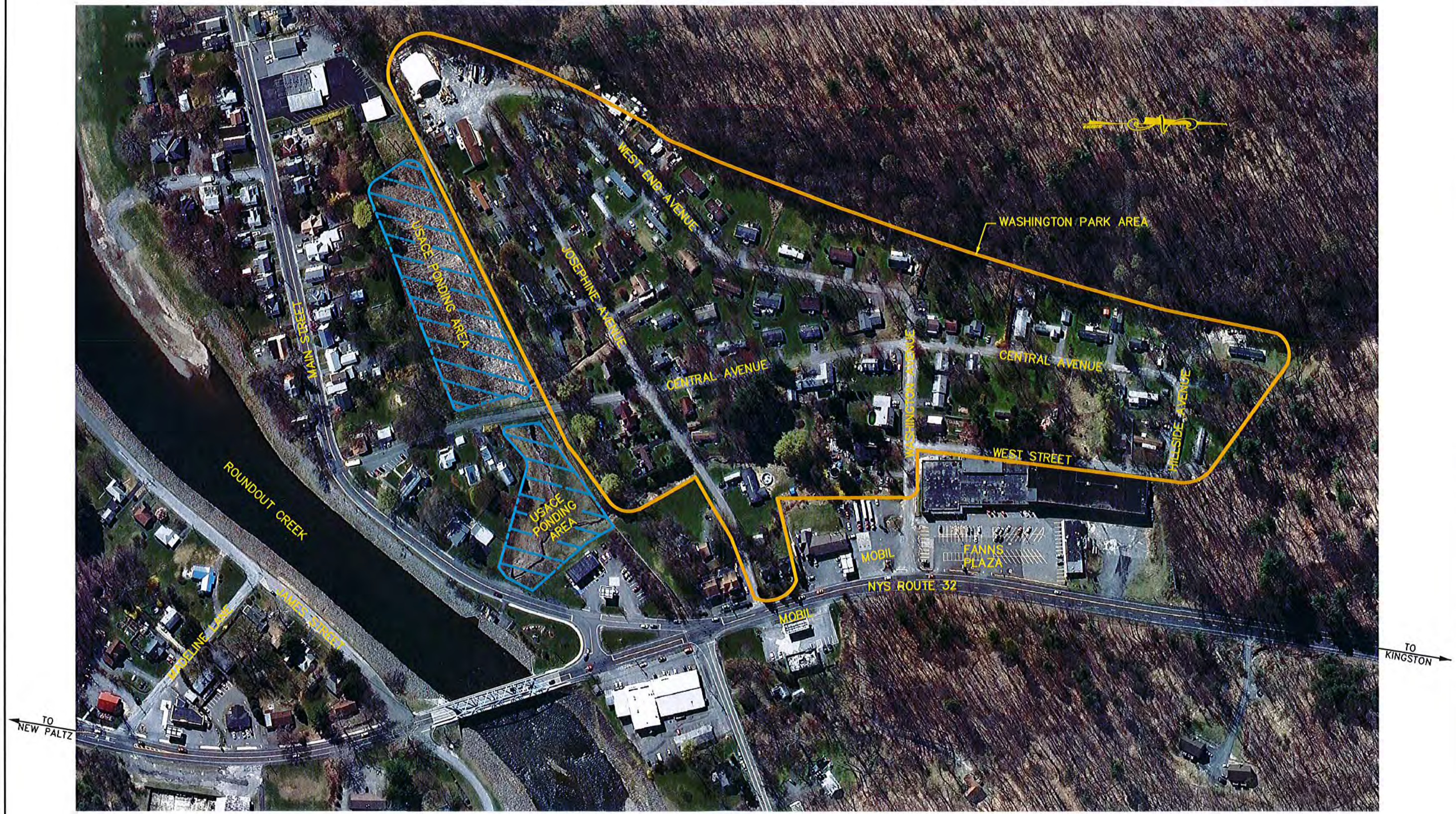
November 2016

Item No.	Description	Unit	Quantity	Unit Cost	Estimate
1	Mobilization	L.S.	1	$5,000	$5,000
2	Maintenance and Protection of Traffic	Per Month	5	$1,500	$7,500
3	Site Prepartion	L.S.	1	$10,000	$10,000
4	Install & Maintain Erosion and Sediment Control Measures	Per Month	5	$3,000	$15,000
				Subtotal - General Items =	$37,500
5	**Eastern Drainage System**				
5.1	Selective Demolition	L.S.	1	$10,000	$10,000
5.2	Install Hill Side Avenue Swale	LF	150	$30	$4,500
5.3	18" diameter HDPE driveway culverts	LF	46	$65	$2,990
5.4	Flared end section with bar rack	Each	2	$500	$1,000
5.5	24" diameter HDPE storm sewer pipe	LF	745	$80	$59,600
5.6	36" diameter HDPE storm sewer pipe	LF	46	$100	$4,600
5.7	48" diameter HDPE storm sewer pipe	LF	183	$120	$21,960
5.8	Catch Basins (30"x48" grate, precast concrete)	Each	9	$4,000	$36,000
5.9	Storm manholes (6' square precast concrete)	Each	1	$8,300	$8,300
5.10	Controlled backfill around storm sewer pipes	CY	600	$45	$27,000
5.11	Reshape swale to the USACE Ponding Area	LF	500	$50	$25,000
5.12	Riprap Apron	Tons	40	$50	$2,000
5.13	Road subbase - 8' wide top of trench	Tons	400	$45	$18,000
5.14	Asphalt Paving (3" Binder + 2" Top) - 8' wide top of trench	Tons	200	$110	$22,000
5.15	1.5" asphalt overlay on West St. and Washington Ave.	Tons	165	$110	$18,150
5.16	Site Restoration	L.S.	1	$5,000	$5,000
				Subtotal - East Drainage System + 1/3 General Items =	$278,600.00
6	**Western Drainage System - West End Avenue to Josephine Avenue**				
6.1	Selective Demolition	L.S.	1	$5,000	$7,000
6.2	Install Swale at 37 West End Avenue	LF	120	$30	$3,600
6.3	30" diameter HDPE perforated storm sewer pipe	LF	501	$85	$42,585
6.4	Second 30" diameter HDPE storm sewer pipe	LF	501	$50	$25,050
6.5	Flared end section with bar rack	Each	4	$500	$2,000
6.6	Catch Basins (30"x48" grate, precast concrete)	Each	5	$10,000	$50,000
6.7	Controlled backfill around storm sewer pipes	CY	300	$45	$13,500
6.8	Mirafi 140N Geotextile Fabric to Wrap Trench	SY	1830	$4.00	$7,320
6.9	Mirafi RS380i Geotextile over Top of Pipe	SY	730	$6.00	$4,380
6.10	Reshape swale to the USACE Ponding Area	L.S.	1	$2,000	$2,000
6.11	Riprap Apron	Tons	40	$50	$2,000
6.12	Road subbase - 20' wide trench	Tons	30	$45	$1,350
6.13	Asphalt Paving (3" Binder + 2" Top)	Tons	30	$110	$3,300
6.14	Site Restoration	L.S.	1	$5,000	$5,000
				Subtotal - West End/Josephine Ave Drainage System + 1/3 General Items =	$181,585.00
7	**Western Drainage System - Mountain Swale**				
7.1	Relocate/Replace Sheds and Fences	Allowance	1	$30,000	$30,000
7.2	Tree Clearing and Grubbing	Acres	0.5	$20,000	$10,000
7.3	Install Mountain Swale	LF	700	$50	$35,000
7.4	Landscaping	Allowance	1	$6,000	$6,000
7.5	Site Restoration	L.S.	1	$5,000	$5,000
				Subtotal - Mountain Swale + 1/3 General Items =	$98,500.00
8	Construction Contingency	%	15%	$558,685	$83,800
9	**Opinion of Probable Construction Cost @ 30% Design**				**$642,000**

VIII. SUMMARY AND RECOMMENDATIONS

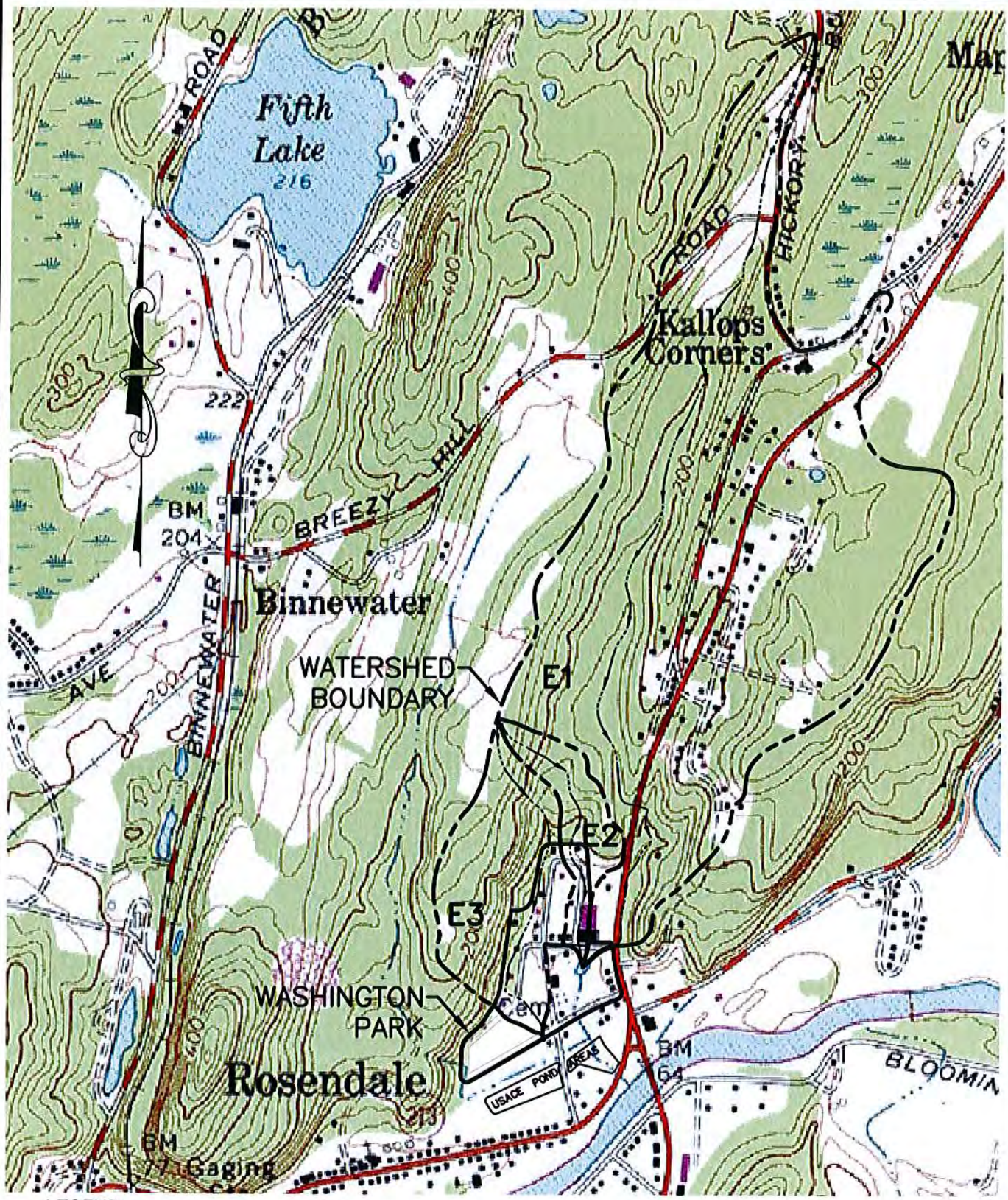
The Town of Rosendale is making drainage improvements as part of the Washington Park Stormwater Mitigation Project to alleviate the chronic flooding problems. The hydrologic and hydraulic study (H&H Study) evaluated the site conditions and determined the stormwater runoff rates. The hydrologic calculations were performed using the HydroCAD computer software. The peak rates of runoff from a 50 year design storm was determined for each subcatchment area and used to properly size the culverts and drainage channels.

The total watershed area contributing runoff to Washington Park is 263.5 acres in size. Washington Park has two primary drainageways which for purposes of this report are called the Eastern Drainage System and the Western Drainage System. The Eastern Drainage System has been designed to convey the runoff from Subcatchment Area E1 (218 acres including the NYS Route 32 runoff) and Subcatchment Area E2 (12.3 acres including West Street). The Western Drainage System has been designed to convey the runoff from Subcatchment Area E3 (33.2 acres including runoff from West End Avenue and Josephine Avenue). The layout of both of these drainage systems is shown on the 30% design drawings given in Appendix C. The opinion of probable construction cost is $642,000.00.



OVERALL SITE PLAN
N.T.S.

FIGURE 1
SITE MAP
WASHINGTON PARK



LEGEND

WATERSHED BOUNDARY

TIME OF CONCENTRATION

E2 SUBCATCHMENT NUMBER

SOURCE:
USGS 7.5 MINUTE QUADRANGLE, ROSENDALE

BRINNIER & LARIOS, P.C. ENGINEERS & LAND SURVEYORS 67 MAIDEN LANE KINGSTON, N.Y.	WATERSHED BOUNDARY WASHINGTON PARK STORMWATER MITIGATION TOWN OF ROSENDALE ULSTER COUNTY, N. Y.	SCALE 1"=1000'	DATE NOV. 2016 DWG RJS CHK JEM	FIGURE NO. 2

APPENDIX A

USDA SOILS REPORT

United States Department of Agriculture

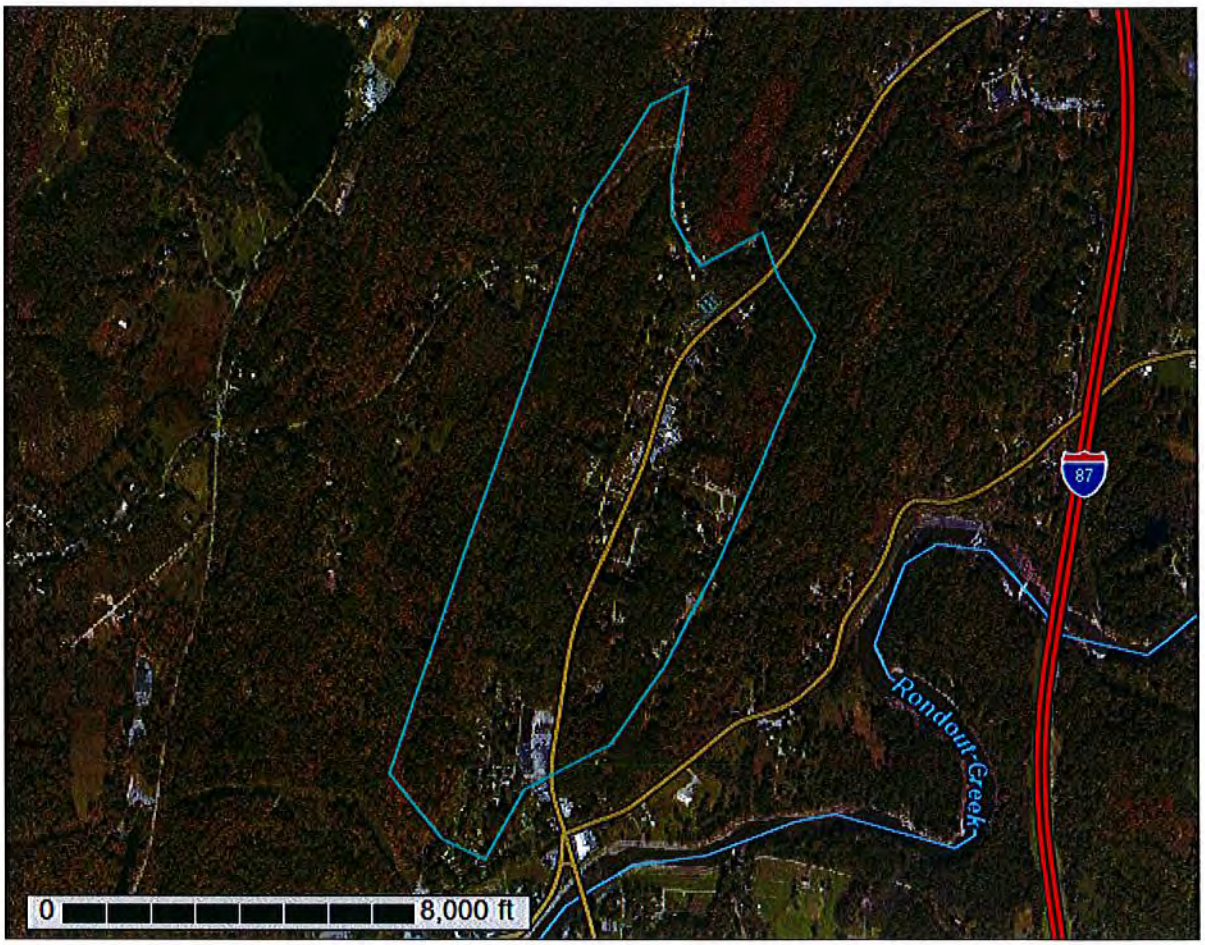
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Ulster County, New York

Washington Park Stormwater Mitigation



October 18, 2016

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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FAE—Farmington-Rock outcrop complex, steep....13
Ra—Raynham silt loam....15
SmB—Stockbridge-Farmington gravelly silt loams, 3 to 8 percent slope....16
STD—Stockbridge-Farmington-Rock outcrop complex, hilly....18
Un—Unadilla silt loam....20
WsB—Williamson silt loam, 3 to 8 percent slopes....22
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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

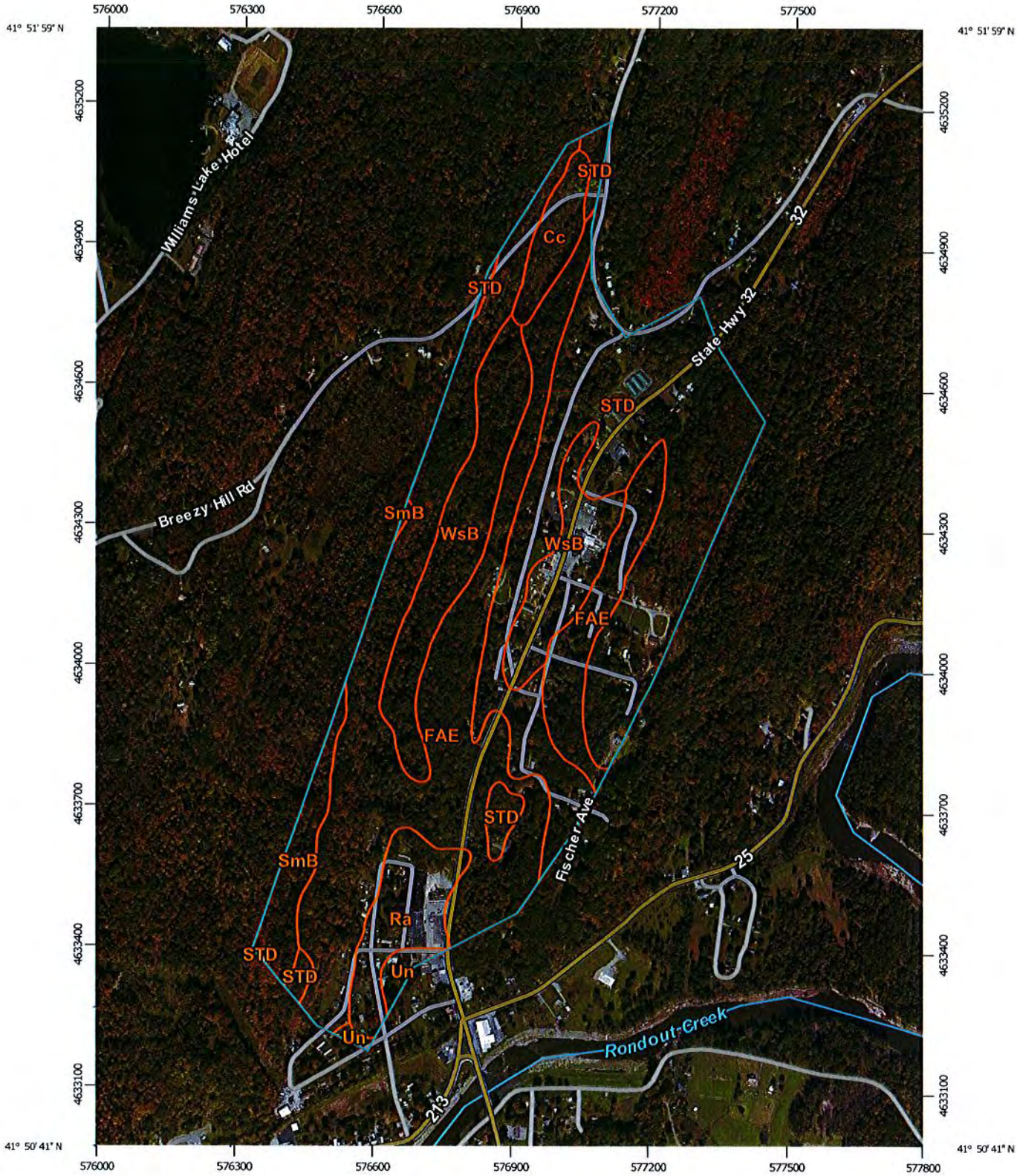
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:11,600 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 150 300 600 900

Feet: 0 500 1000 2000 3000

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

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

Special Point Features

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

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

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

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

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

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

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

Soil Survey Area: Ulster County, New York
Survey Area Data: Version 13, Sep 25, 2015

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

Date(s) aerial images were photographed: Mar 20, 2011—Oct 10, 2011

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

Map Unit Legend

Ulster County, New York (NY111)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Cc	Canandaigua silt loam	6.6	2.7%
FAE	Farmington-Rock outcrop complex, steep	97.8	40.2%
Ra	Raynham silt loam	13.2	5.4%
SmB	Stockbridge-Farmington gravelly silt loams, 3 to 8 percent slope	8.5	3.5%
STD	Stockbridge-Farmington-Rock outcrop complex, hilly	79.9	32.8%
Un	Unadilla silt loam	2.4	1.0%
WsB	Williamson silt loam, 3 to 8 percent slopes	35.0	14.4%
Totals for Area of Interest		**243.5**	**100.0%**

Map Unit Descriptions

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

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

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

where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

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

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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

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

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

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

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

Ulster County, New York

Cc—Canandaigua silt loam

Map Unit Setting

National map unit symbol: 9xfz
Elevation: 100 to 1,000 feet
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Canandaigua

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty and clayey glaciolacustrine deposits

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 37 inches: silt loam
H3 - 37 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water storage in profile: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Lamson

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Lyons

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Madalin

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Raynham

Percent of map unit: 5 percent
Hydric soil rating: No

FAE—Farmington-Rock outcrop complex, steep

Map Unit Setting

National map unit symbol: 9xgf
Elevation: 100 to 900 feet
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Farmington and similar soils: 45 percent
Rock outcrop: 30 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Farmington

Setting

Landform: Benches, ridges, till plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till or congeliturbate derived from limestone, dolomite, shale, and sandstone, and in many places mixed with wind and water deposits

Typical profile

O - 0 to 1 inches: slightly decomposed plant material
H1 - 1 to 6 inches: gravelly silt loam
H2 - 6 to 16 inches: gravelly silt loam
H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 25 to 60 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Available water storage in profile: Very low (about 2.3 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Rock Outcrop

Typical profile
H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities
Slope: 25 to 60 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Very low to very high (0.00 to 19.98 in/hr)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydric soil rating: Unranked

Minor Components

Lordstown
Percent of map unit: 5 percent
Hydric soil rating: No

Nassau
Percent of map unit: 5 percent
Hydric soil rating: No

Plainfield
Percent of map unit: 5 percent
Hydric soil rating: No

Stockbridge
Percent of map unit: 5 percent
Hydric soil rating: No

Valois
Percent of map unit: 5 percent
Hydric soil rating: No

Ra—Raynham silt loam

Map Unit Setting

National map unit symbol: 9xj3
Elevation: 50 to 500 feet
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Raynham and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Raynham

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Glaciolacustrine, eolian, or old alluvial deposits, comprised mainly of silt and very fine sand

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 37 inches: silt loam
H3 - 37 to 56 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Available water storage in profile: High (about 11.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Canandaigua

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Madalin

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Scio

Percent of map unit: 5 percent
Hydric soil rating: No

Unadilla

Percent of map unit: 5 percent
Hydric soil rating: No

Williamson

Percent of map unit: 5 percent
Hydric soil rating: No

SmB—Stockbridge-Farmington gravelly silt loams, 3 to 8 percent slope

Map Unit Setting

National map unit symbol: 9xjm
Elevation: 100 to 900 feet
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Stockbridge and similar soils: 50 percent
Farmington and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Stockbridge

Setting

Landform: Hills, till plains, drumlinoid ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous loamy till

Typical profile

H1 - 0 to 7 inches: gravelly silt loam
H2 - 7 to 34 inches: gravelly silt loam
H3 - 34 to 56 inches: gravelly silt loam
H4 - 56 to 60 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 40 to 80 inches to lithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Farmington

Setting

Landform: Benches, ridges, till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till or congeliturbate derived from limestone, dolomite, shale, and sandstone, and in many places mixed with wind and water deposits

Typical profile

O - 0 to 1 inches: slightly decomposed plant material
H1 - 1 to 6 inches: gravelly silt loam
H2 - 6 to 16 inches: gravelly silt loam
H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Available water storage in profile: Very low (about 2.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: D

Hydric soil rating: No

Minor Components

Bath
Percent of map unit: 5 percent
Hydric soil rating: No

Mardin
Percent of map unit: 5 percent
Hydric soil rating: No

Valois
Percent of map unit: 5 percent
Hydric soil rating: No

Volusia
Percent of map unit: 5 percent
Hydric soil rating: No

STD—Stockbridge-Farmington-Rock outcrop complex, hilly

Map Unit Setting
National map unit symbol: 9xjp
Elevation: 100 to 900 feet
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition
Stockbridge and similar soils: 30 percent
Farmington and similar soils: 30 percent
Rock outcrop: 20 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Stockbridge

Setting
Landform: Hills, till plains, drumlinoid ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous loamy till

Typical profile
H1 - 0 to 7 inches: gravelly silt loam
H2 - 7 to 34 inches: gravelly silt loam
H3 - 34 to 56 inches: gravelly silt loam

H4 - 56 to 60 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 40 to 80 inches to lithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Farmington

Setting

Landform: Benches, ridges, till plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till or congeliturbate derived from limestone, dolomite, shale, and sandstone, and in many places mixed with wind and water deposits

Typical profile

O - 0 to 1 inches: slightly decomposed plant material
H1 - 1 to 6 inches: gravelly silt loam
H2 - 6 to 16 inches: gravelly silt loam
H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Available water storage in profile: Very low (about 2.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Very low to very high (0.00 to 19.98 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydric soil rating: Unranked

Minor Components

Mardin

Percent of map unit: 5 percent
Hydric soil rating: No

Rhinebeck

Percent of map unit: 5 percent
Hydric soil rating: No

Valois

Percent of map unit: 5 percent
Hydric soil rating: No

Volusia

Percent of map unit: 5 percent
Hydric soil rating: No

Un—Unadilla silt loam

Map Unit Setting

National map unit symbol: 9xk2
Elevation: 600 to 1,800 feet
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Unadilla

Setting

Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Glaciolacustrine deposits, eolian deposits, or old alluvium, comprised mainly of silt and very fine sand

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 40 inches: silt loam
H3 - 40 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Available water storage in profile: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Raynham

Percent of map unit: 5 percent
Hydric soil rating: No

Riverhead

Percent of map unit: 5 percent
Hydric soil rating: No

Scio

Percent of map unit: 5 percent
Hydric soil rating: No

Suncook

Percent of map unit: 5 percent
Hydric soil rating: No

WsB—Williamson silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9xkm
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Williamson

Setting

Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Glaciolacustrine or eolian deposits with a high content of silt and very fine sand

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 18 inches: silt loam
H3 - 18 to 42 inches: very fine sandy loam
H4 - 42 to 52 inches: stratified silt loam to silty clay loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 15 to 24 inches to fragipan
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 14 to 23 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Hudson

Percent of map unit: 5 percent
Hydric soil rating: No

Riverhead

Percent of map unit: 5 percent
Hydric soil rating: No

Schoharie

Percent of map unit: 5 percent
Hydric soil rating: No

Unadilla

Percent of map unit: 5 percent
Hydric soil rating: No

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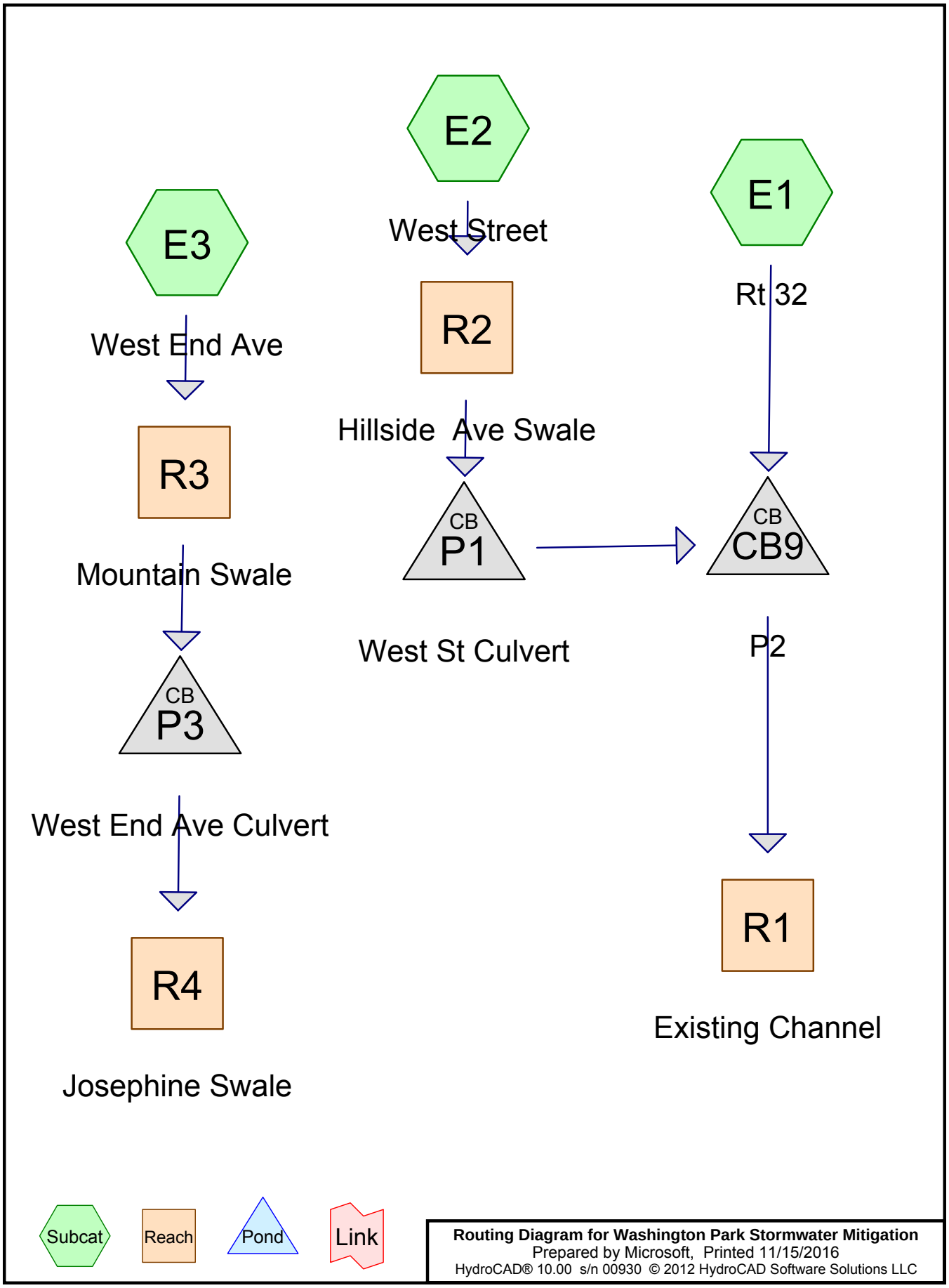
APPENDIX B

HYDROCAD OUTPUT AND HYDRAULIC CALCULATIONS



Routing Diagram for Washington Park Stormwater Mitigation
Prepared by Microsoft, Printed 11/15/2016
HydroCAD® 10.00 s/n 00930 © 2012 HydroCAD Software Solutions LLC

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: Rt 32 Runoff Area=217.900 ac 10.53% Impervious Runoff Depth>2.70"
Flow Length=4,900' Tc=332.2 min CN=72 Runoff=119.20 cfs 49.041 af

Subcatchment E2: West Street Runoff Area=12.300 ac 18.60% Impervious Runoff Depth>3.73"
Flow Length=2,310' Tc=105.5 min CN=75 Runoff=18.00 cfs 3.821 af

Subcatchment E3: West End Ave Runoff Area=33.100 ac 9.06% Impervious Runoff Depth>3.40"
Flow Length=1,870' Tc=121.5 min CN=72 Runoff=39.71 cfs 9.365 af

Reach R1: Existing Channel Avg. Flow Depth=2.31' Max Vel=5.48 fps Inflow=121.92 cfs 52.857 af
n=0.022 L=250.0' S=0.0040 '/' Capacity=627.54 cfs Outflow=121.90 cfs 52.722 af

Reach R2: Hillside Ave Swale Avg. Flow Depth=0.84' Max Vel=4.59 fps Inflow=18.00 cfs 3.821 af
n=0.022 L=210.0' S=0.0095 '/' Capacity=247.98 cfs Outflow=17.97 cfs 3.816 af

Reach R3: Mountain Swale Avg. Flow Depth=0.96' Max Vel=8.45 fps Inflow=39.71 cfs 9.365 af
n=0.022 L=500.0' S=0.0280 '/' Capacity=175.91 cfs Outflow=39.68 cfs 9.350 af

Reach R4: Josephine Swale Avg. Flow Depth=1.10' Max Vel=8.60 fps Inflow=39.68 cfs 9.350 af
n=0.022 L=180.0' S=0.0278 '/' Capacity=717.48 cfs Outflow=39.68 cfs 9.345 af

Pond CB9: P2 Peak Elev=60.92' Inflow=121.92 cfs 52.857 af
48.0" Round Culvert n=0.012 L=178.0' S=0.0065 '/' Outflow=121.92 cfs 52.857 af

Pond P1: West St Culvert Peak Elev=72.79' Inflow=17.97 cfs 3.816 af
24.0" Round Culvert n=0.012 L=750.0' S=0.0195 '/' Outflow=17.97 cfs 3.816 af

Pond P3: West End Ave Culvert Peak Elev=60.12' Inflow=39.68 cfs 9.350 af
30.0" Round Culvert x 2.00 n=0.012 L=548.0' S=0.0010 '/' Outflow=39.68 cfs 9.350 af

Total Runoff Area = 263.300 ac Runoff Volume = 62.226 af Average Runoff Depth = 2.84"
89.28% Pervious = 235.062 ac 10.72% Impervious = 28.238 ac

Summary for Subcatchment E1: Rt 32

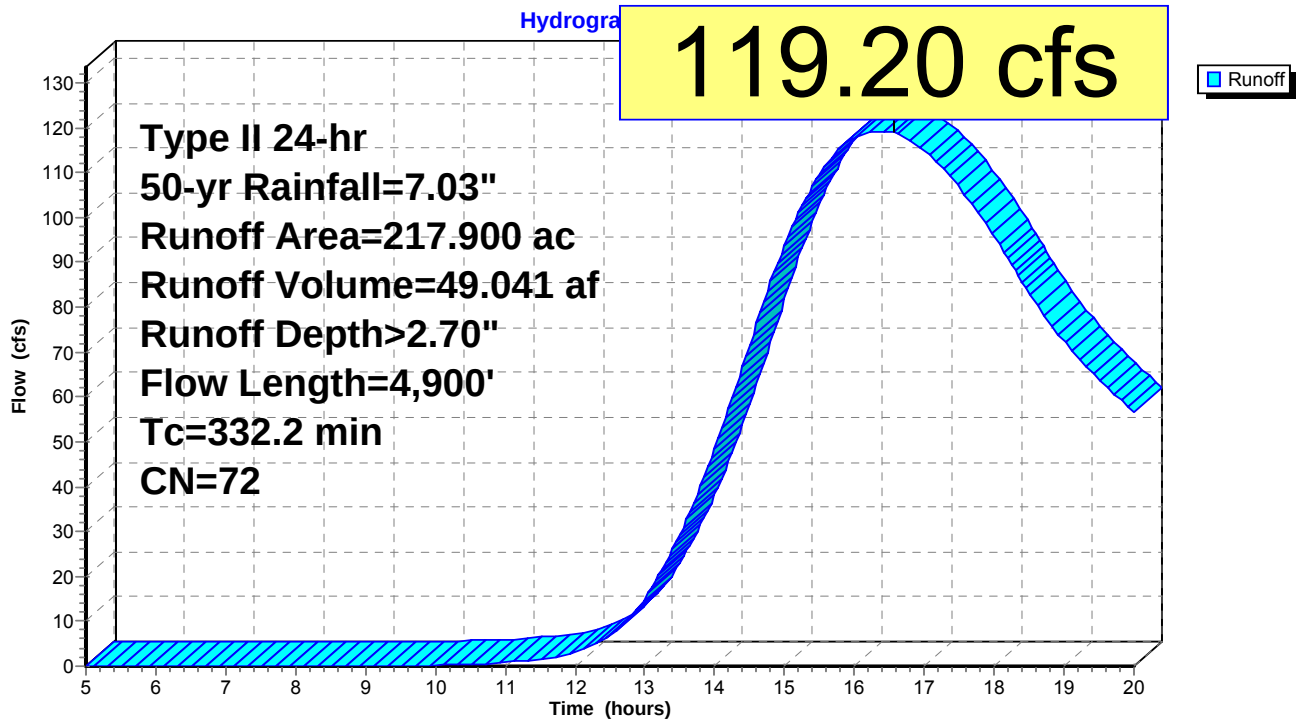
Runoff = 119.20 cfs @ 16.57 hrs, Volume= 49.041 af, Depth> 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=7.03"

	Area (ac)	CN	Description
*	9.000	98	Paved parking, HSG C/D
*	162.400	71	Woods, Good, HSG C/D
	46.500	72	1/3 acre lots, 30% imp, HSG B
	217.900	72	Weighted Average
	194.950		89.47% Pervious Area
	22.950		10.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.0	100	0.0150	0.04		**Sheet Flow, Sheet Flow** Woods: Dense underbrush n= 0.800 P2= 3.19"
101.2	300	0.0150	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.19"
188.6	4,000	0.0200	0.35		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.4	500	0.0500	21.82	720.17	**Channel Flow,** Area= 33.0 sf Perim= 19.0' r= 1.74' n= 0.022 Earth, clean & straight
332.2	4,900	Total			

Subcatchment E1: Rt 32



Summary for Subcatchment E2: West Street

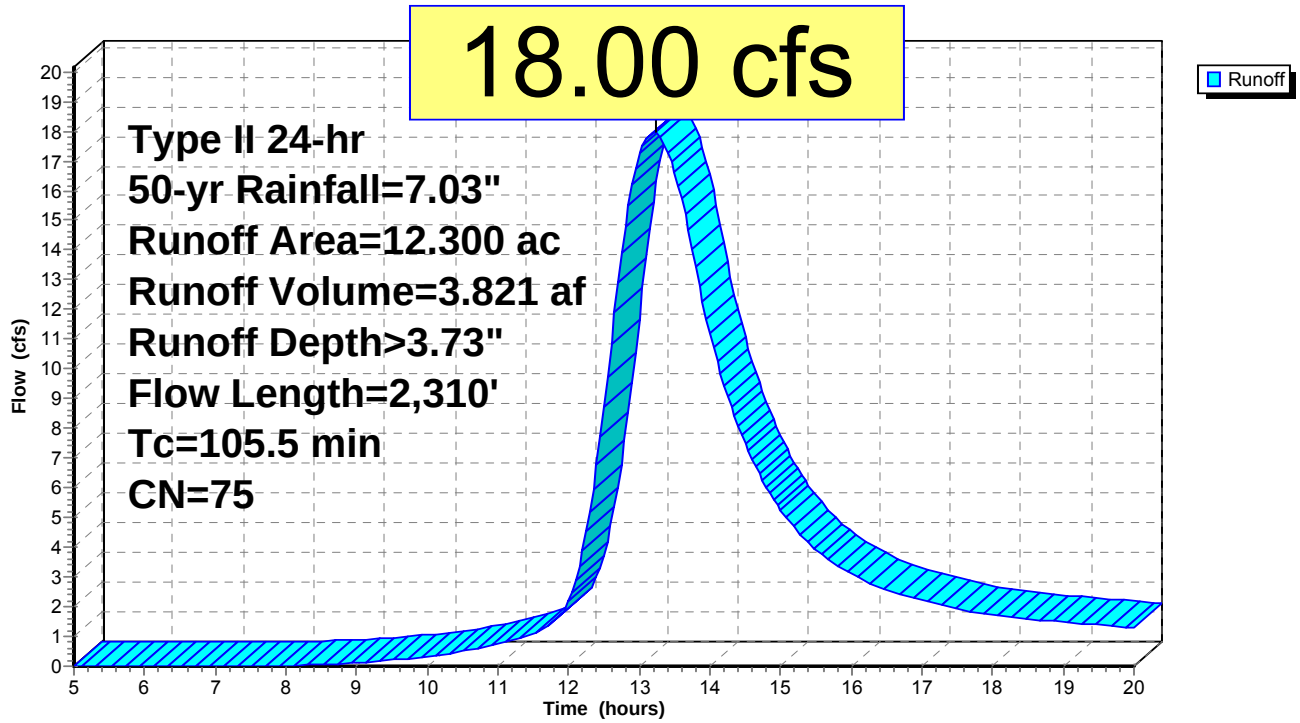
Runoff = 18.00 cfs @ 13.23 hrs, Volume= 3.821 af, Depth> 3.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=7.03"

	Area (ac)	CN	Description
*	1.300	98	Paved parking, HSG C/D
*	8.400	71	Woods, Good, HSG C/D
	2.600	75	1/4 acre lots, 38% imp, HSG B
	12.300	75	Weighted Average
	10.012		81.40% Pervious Area
	2.288		18.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.4	100	0.0100	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.19"
51.8	300	0.0800	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.19"
2.4	1,000	0.0500	6.86	226.34	**Channel Flow, Mountain stream** Area= 33.0 sf Perim= 19.0' r= 1.74' n= 0.070 Sluggish weedy reaches w/pools
0.4	210	0.0100	9.76	322.07	**Channel Flow, Hillside Ave** Area= 33.0 sf Perim= 19.0' r= 1.74' n= 0.022 Earth, clean & straight
1.5	700	0.0100	7.80	24.51	**Pipe Channel, West & Washington Ave** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012
105.5	2,310	Total			

Subcatchment E2: West Street



Summary for Subcatchment E3: West End Ave

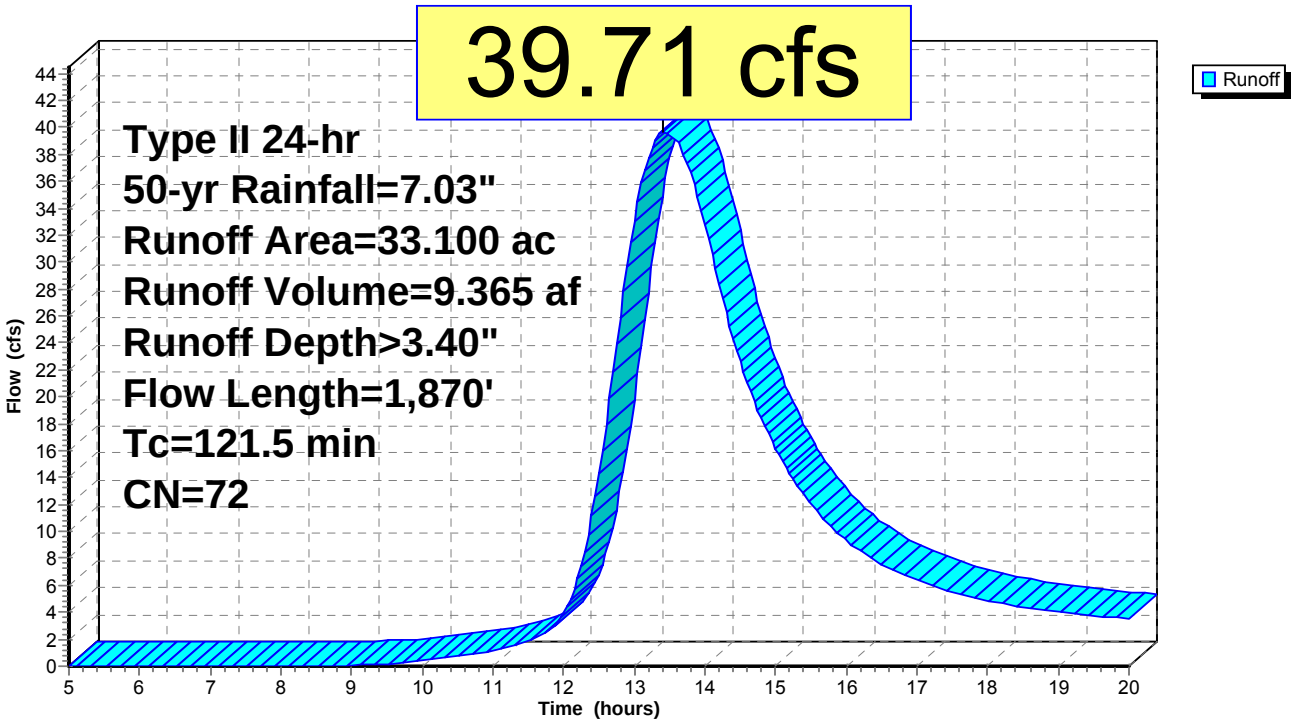
Runoff = 39.71 cfs @ 13.41 hrs, Volume= 9.365 af, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=7.03"

	Area (ac)	CN	Description
*	0.600	98	Paved parking, HSG C/D
*	24.500	71	Woods, Good, HSG C/D
	8.000	72	1/3 acre lots, 30% imp, HSG B
	33.100	72	Weighted Average
	30.100		90.94% Pervious Area
	3.000		9.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.4	100	0.0100	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.19"
58.1	150	0.0150	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.19"
5.3	500	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.7	700	0.0150	1.52	4.56	**Channel Flow, Mountain Swale** Area= 3.0 sf Perim= 19.0' r= 0.16' n= 0.035 Earth, dense weeds
1.0	420	0.0100	7.20	22.62	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
121.5	1,870	Total			

Subcatchment E3: West End Ave



Summary for Reach R1: Existing Channel

[79] Warning: Submerged Pond CB9 Primary device # 1 INLET by 0.52'

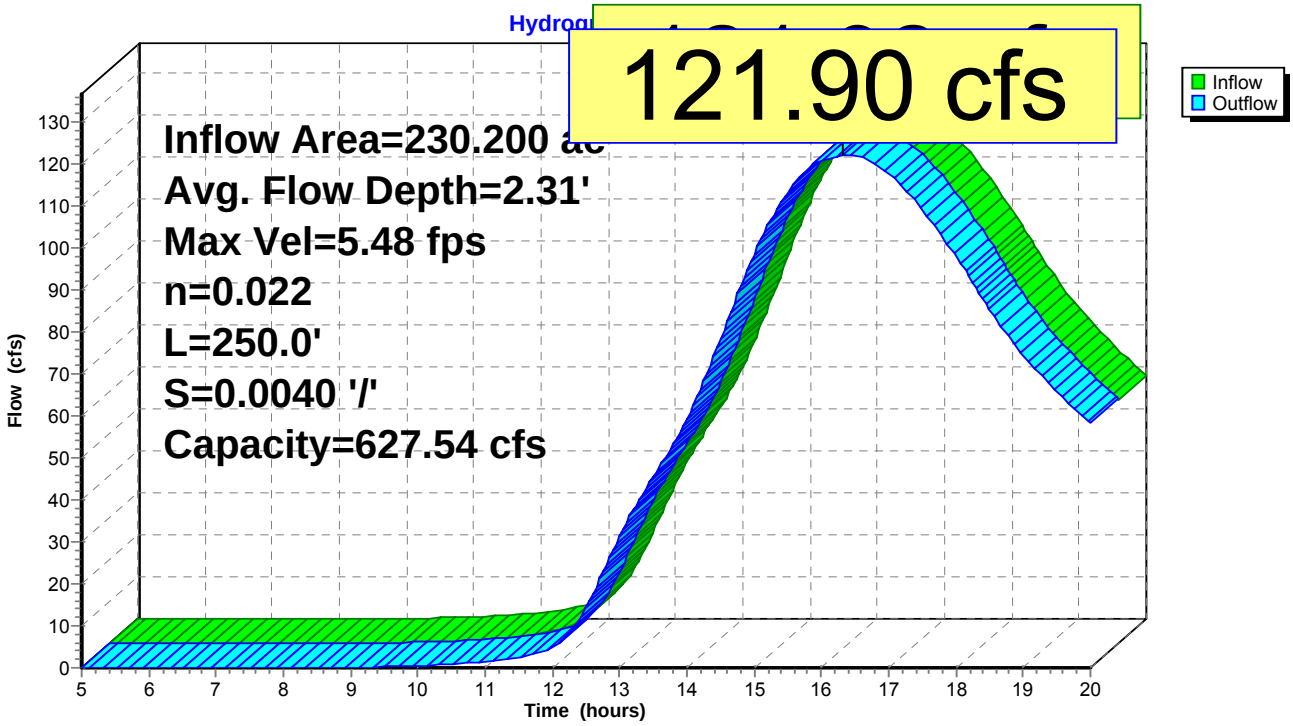
Inflow Area = 230.200 ac, 10.96% Impervious, Inflow Depth > 2.76" for 50-yr event
Inflow = 121.92 cfs @ 16.27 hrs, Volume= 52.857 af
Outflow = 121.90 cfs @ 16.31 hrs, Volume= 52.722 af, Atten= 0%, Lag= 2.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.48 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 3.32 fps, Avg. Travel Time= 1.3 min

Peak Storage= 5,566 cf @ 16.29 hrs
Average Depth at Peak Storage= 2.31'
Bank-Full Depth= 5.00' Flow Area= 75.0 sf, Capacity= 627.54 cfs

5.00' x 5.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 25.00'
Length= 250.0' Slope= 0.0040 '/'
Inlet Invert= 53.00', Outlet Invert= 52.00'

Reach R1: Existing Channel



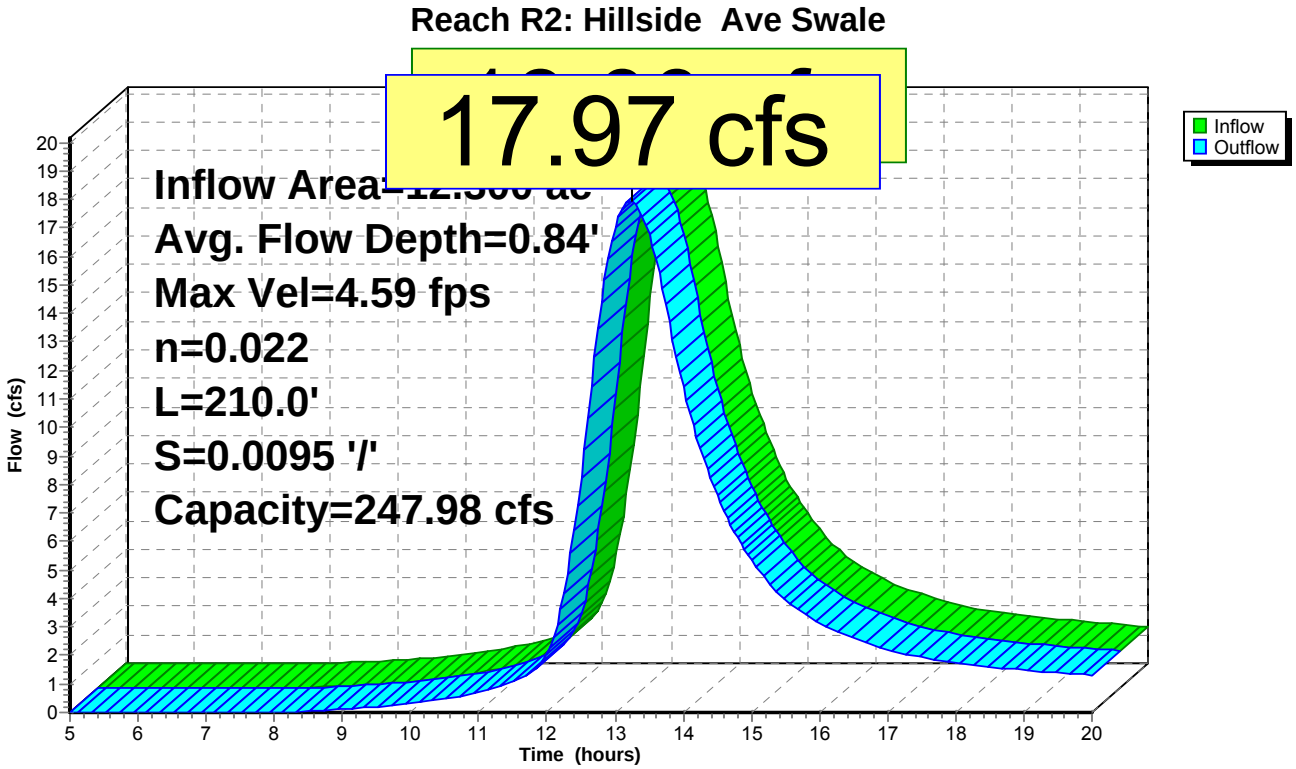
Summary for Reach R2: Hillside Ave Swale

Inflow Area = 12.300 ac, 18.60% Impervious, Inflow Depth > 3.73" for 50-yr event
Inflow = 18.00 cfs @ 13.23 hrs, Volume= 3.821 af
Outflow = 17.97 cfs @ 13.24 hrs, Volume= 3.816 af, Atten= 0%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.59 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.27 fps, Avg. Travel Time= 1.5 min

Peak Storage= 823 cf @ 13.23 hrs
Average Depth at Peak Storage= 0.84'
Bank-Full Depth= 3.00' Flow Area= 27.0 sf, Capacity= 247.98 cfs

3.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 15.00'
Length= 210.0' Slope= 0.0095 '/'
Inlet Invert= 74.00', Outlet Invert= 72.00'



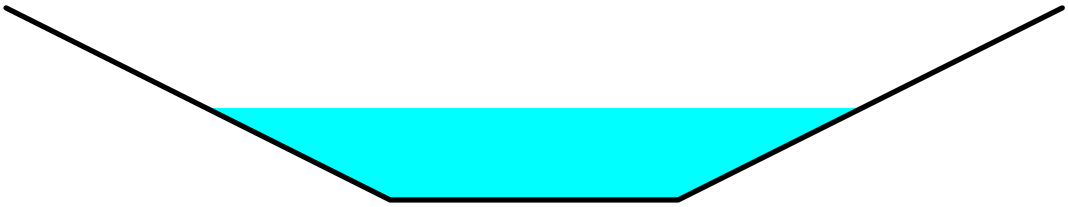
Summary for Reach R3: Mountain Swale

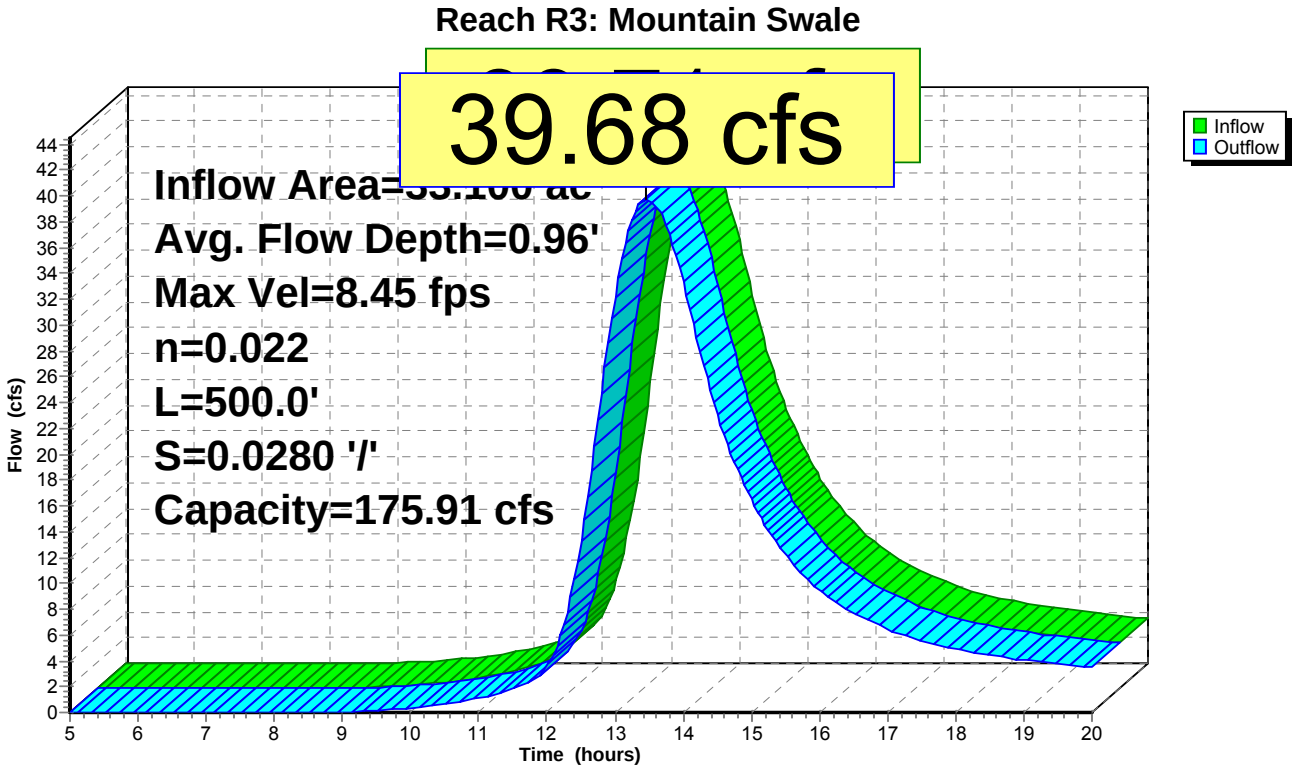
Inflow Area = 33.100 ac, 9.06% Impervious, Inflow Depth > 3.40" for 50-yr event
Inflow = 39.71 cfs @ 13.41 hrs, Volume= 9.365 af
Outflow = 39.68 cfs @ 13.45 hrs, Volume= 9.350 af, Atten= 0%, Lag= 2.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.45 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 4.47 fps, Avg. Travel Time= 1.9 min

Peak Storage= 2,352 cf @ 13.42 hrs
Average Depth at Peak Storage= 0.96'
Bank-Full Depth= 2.00' Flow Area= 14.0 sf, Capacity= 175.91 cfs

3.00' x 2.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 11.00'
Length= 500.0' Slope= 0.0280 '/'
Inlet Invert= 71.00', Outlet Invert= 57.00'





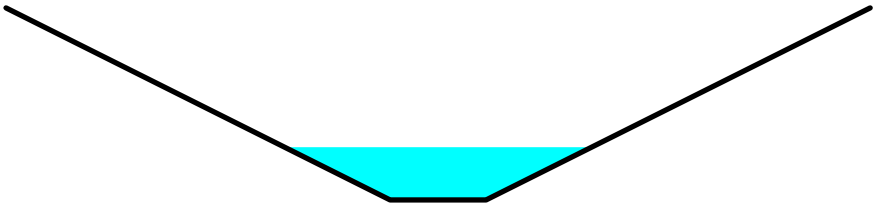
Summary for Reach R4: Josephine Swale

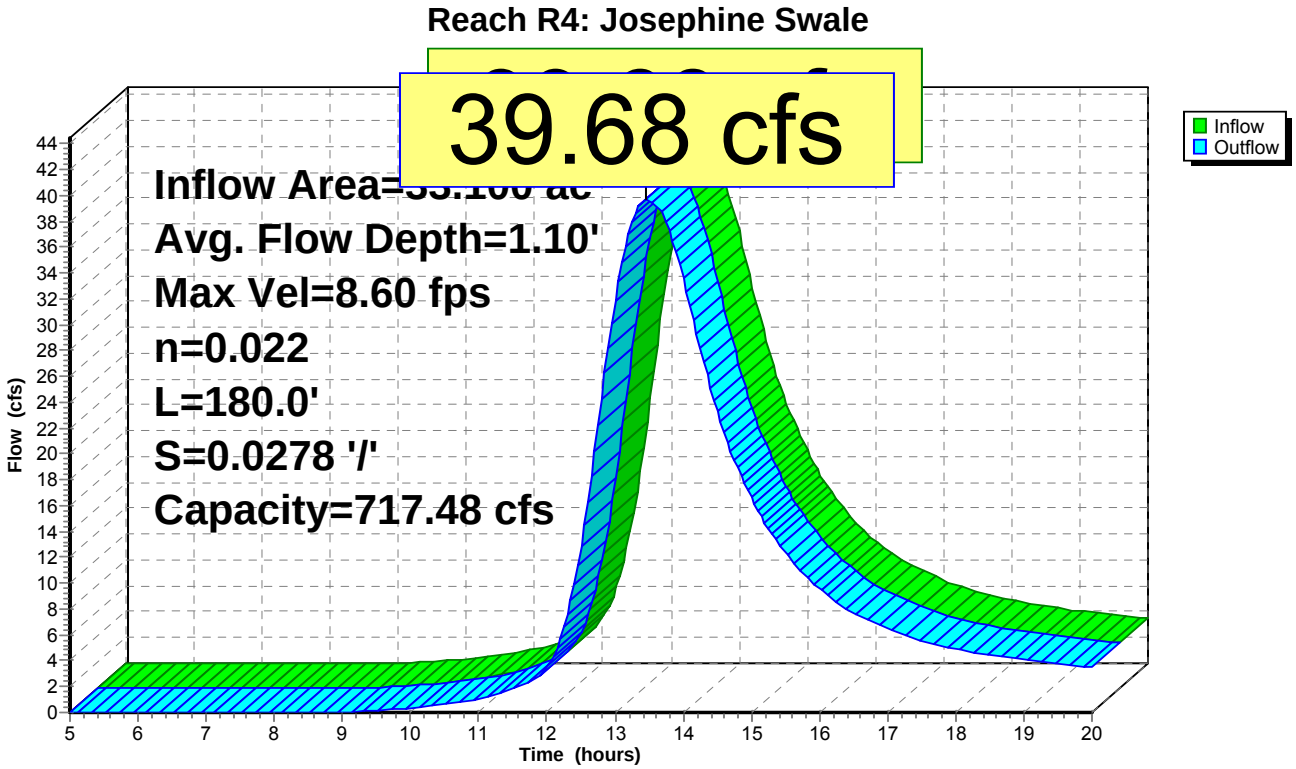
Inflow Area = 33.100 ac, 9.06% Impervious, Inflow Depth > 3.39" for 50-yr event
Inflow = 39.68 cfs @ 13.45 hrs, Volume= 9.350 af
Outflow = 39.68 cfs @ 13.46 hrs, Volume= 9.345 af, Atten= 0%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.60 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 4.77 fps, Avg. Travel Time= 0.6 min

Peak Storage= 831 cf @ 13.45 hrs
Average Depth at Peak Storage= 1.10'
Bank-Full Depth= 4.00' Flow Area= 40.0 sf, Capacity= 717.48 cfs

2.00' x 4.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 18.00'
Length= 180.0' Slope= 0.0278 '/'
Inlet Invert= 55.00', Outlet Invert= 50.00'





Summary for Pond CB9: P2

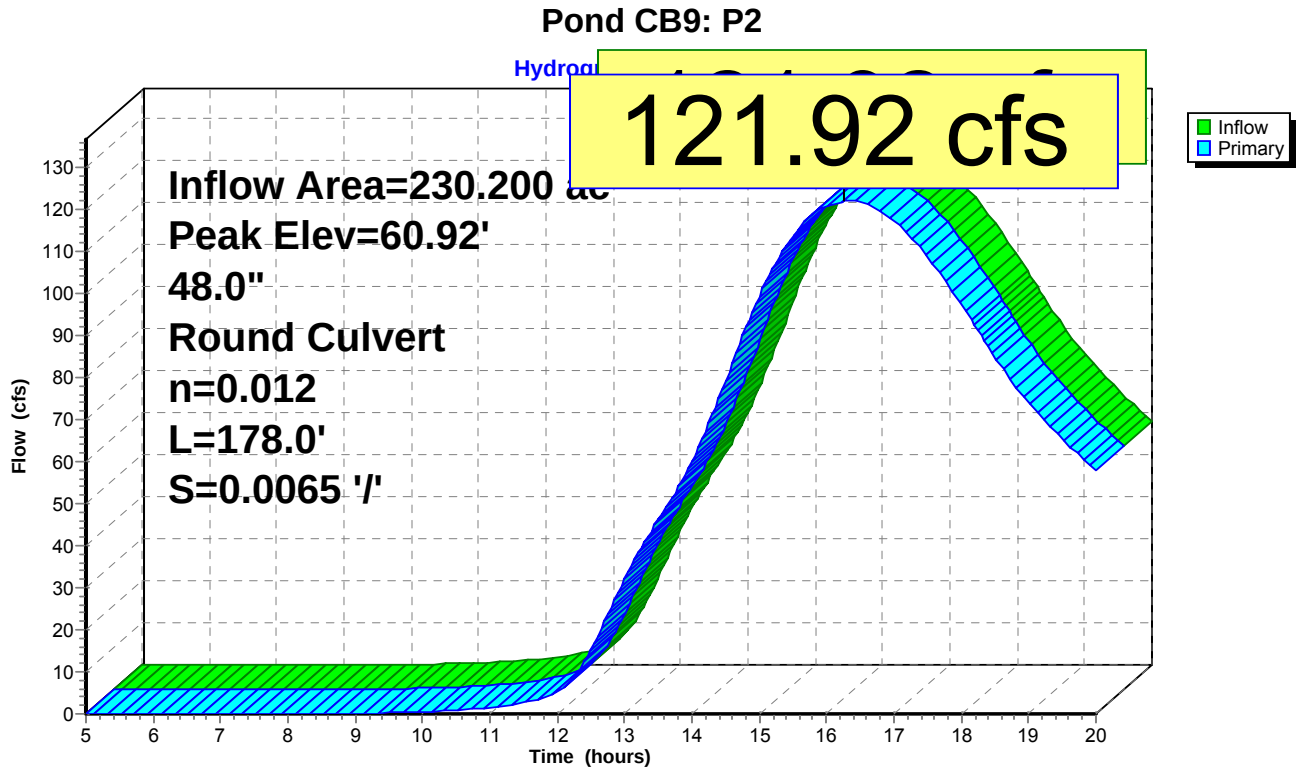
[57] Hint: Peaked at 60.92' (Flood elevation advised)
[79] Warning: Submerged Pond P1 Primary device # 1 OUTLET by 5.13'

Inflow Area = 230.200 ac, 10.96% Impervious, Inflow Depth > 2.76" for 50-yr event
Inflow = 121.92 cfs @ 16.27 hrs, Volume= 52.857 af
Outflow = 121.92 cfs @ 16.27 hrs, Volume= 52.857 af, Atten= 0%, Lag= 0.0 min
Primary = 121.92 cfs @ 16.27 hrs, Volume= 52.857 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 60.92' @ 16.27 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	54.79'	**48.0" Round P1** L= 178.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 54.79' / 53.63' S= 0.0065 '/' Cc= 0.900 n= 0.012, Flow Area= 12.57 sf

Primary OutFlow Max=121.90 cfs @ 16.27 hrs HW=60.92' (Free Discharge)
└**1=P1** (Barrel Controls 121.90 cfs @ 9.70 fps)



Summary for Pond P1: West St Culvert

[57] Hint: Peaked at 72.79' (Flood elevation advised)
[61] Hint: Exceeded Reach R2 outlet invert by 0.79' @ 13.25 hrs

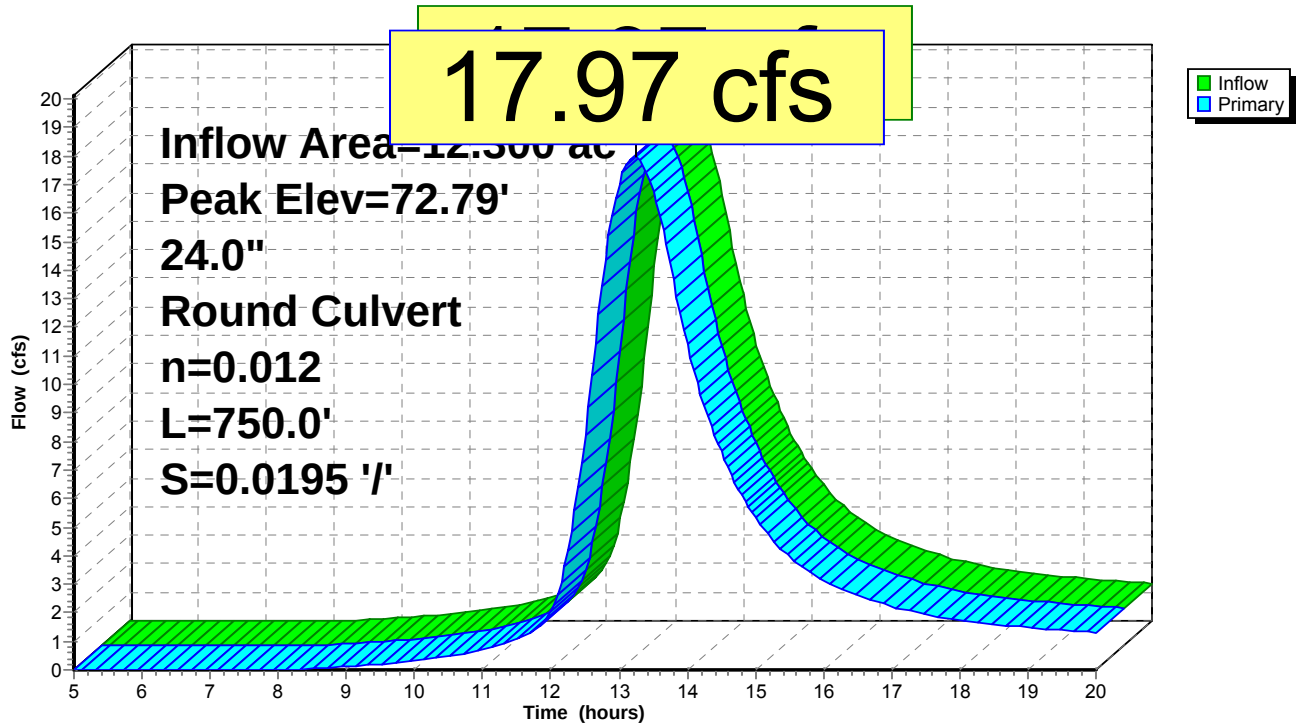
Inflow Area =	12.300 ac, 18.60% Impervious, Inflow Depth > 3.72" for 50-yr event				
Inflow =	17.97 cfs @	13.24 hrs, Volume=	3.816 af		
Outflow =	17.97 cfs @	13.24 hrs, Volume=	3.816 af, Atten= 0%, Lag= 0.0 min		
Primary =	17.97 cfs @	13.24 hrs, Volume=	3.816 af		

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 72.79' @ 13.24 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	70.38'	**24.0" Round Culvert** L= 750.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 70.38' / 55.79' S= 0.0195 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=17.96 cfs @ 13.24 hrs HW=72.79' (Free Discharge)
└**1=Culvert** (Inlet Controls 17.96 cfs @ 5.72 fps)

Pond P1: West St Culvert



Summary for Pond P3: West End Ave Culvert

[57] Hint: Peaked at 60.12' (Flood elevation advised)
[62] Hint: Exceeded Reach R3 OUTLET depth by 2.16' @ 13.45 hrs

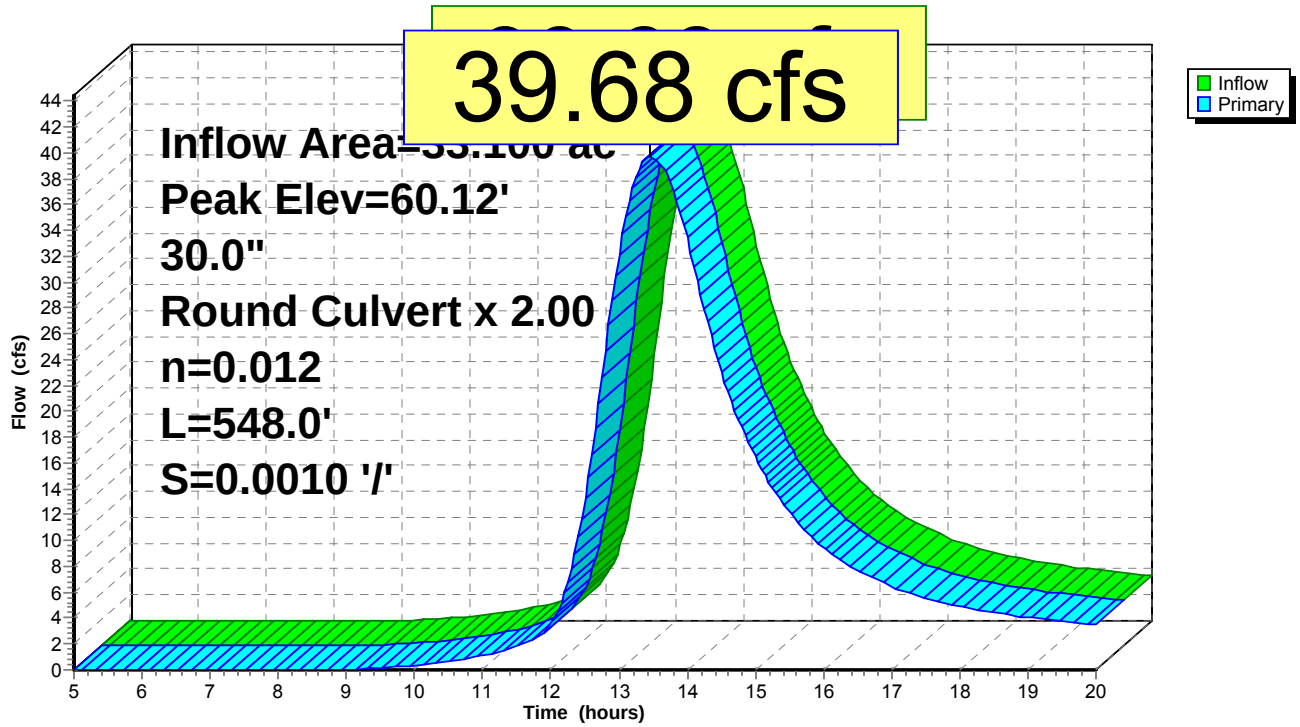
Inflow Area =	33.100 ac,	9.06% Impervious,	Inflow Depth >	3.39"	for 50-yr event
Inflow =	39.68 cfs @	13.45 hrs,	Volume=	9.350 af	
Outflow =	39.68 cfs @	13.45 hrs,	Volume=	9.350 af,	Atten= 0%, Lag= 0.0 min
Primary =	39.68 cfs @	13.45 hrs,	Volume=	9.350 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 60.12' @ 13.45 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	56.67'	**30.0" Round West End X 2.00** L= 548.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 56.67' / 56.14' S= 0.0010 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf

Primary OutFlow Max=39.68 cfs @ 13.45 hrs HW=60.12' (Free Discharge)
└**1=West End** (Barrel Controls 39.68 cfs @ 4.04 fps)

Pond P3: West End Ave Culvert



Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New York
Location	
Longitude	74.076 degrees West
Latitude	41.847 degrees North
Elevation	0 feet
Date/Time	Mon, 17 Oct 2016 10:30:48 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.31	0.47	0.58	0.77	0.96	1.20	**1yr**	0.83	1.12	1.38	1.71	2.12	2.62	3.02	**1yr**	2.32	2.91	3.39	4.02	4.58	**1yr**
2yr	0.37	0.57	0.71	0.93	1.17	1.47	**2yr**	1.01	1.34	1.69	2.09	2.58	3.19	3.63	**2yr**	2.82	3.49	3.99	4.68	5.32	**2yr**
5yr	0.43	0.67	0.84	1.13	1.45	1.83	**5yr**	1.25	1.66	2.12	2.63	3.24	3.99	4.59	**5yr**	3.53	4.42	5.01	5.77	6.54	**5yr**
10yr	0.48	0.76	0.96	1.31	1.70	2.17	**10yr**	1.47	1.96	2.51	3.13	3.85	4.73	5.49	**10yr**	4.18	5.28	5.96	6.76	7.64	**10yr**
25yr	0.57	0.91	1.15	1.59	2.10	2.70	**25yr**	1.81	2.43	3.15	3.93	4.84	5.92	6.96	**25yr**	5.24	6.69	7.51	8.33	9.40	**25yr**
50yr	0.63	1.02	1.31	1.83	2.47	3.21	**50yr**	2.13	2.86	3.75	4.68	5.76	7.03	8.33	**50yr**	6.22	8.01	8.95	9.77	11.00	**50yr**
100yr	0.73	1.18	1.51	2.14	2.91	3.81	**100yr**	2.51	3.37	4.45	5.57	6.85	8.34	9.98	**100yr**	7.38	9.60	10.66	11.47	12.88	**100yr**
200yr	0.82	1.34	1.74	2.49	3.43	4.52	**200yr**	2.96	3.98	5.30	6.63	8.16	9.91	11.96	**200yr**	8.77	11.50	12.72	13.46	15.09	**200yr**
500yr	0.98	1.62	2.11	3.06	4.28	5.66	**500yr**	3.69	4.95	6.66	8.35	10.27	12.44	15.21	**500yr**	11.01	14.63	16.08	16.65	18.61	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.52	0.70	0.86	0.99	**1yr**	0.75	0.97	1.17	1.48	1.83	2.28	2.62	**1yr**	2.02	2.52	2.64	3.63	4.05	**1yr**
2yr	0.36	0.55	0.68	0.92	1.13	1.32	**2yr**	0.98	1.30	1.50	1.92	2.43	3.07	3.51	**2yr**	2.72	3.37	3.87	4.56	5.17	**2yr**
5yr	0.39	0.61	0.75	1.03	1.31	1.53	**5yr**	1.13	1.50	1.73	2.23	2.81	3.67	4.21	**5yr**	3.25	4.05	4.65	5.34	6.07	**5yr**
10yr	0.43	0.66	0.82	1.15	1.48	1.71	**10yr**	1.28	1.68	1.91	2.48	3.11	4.16	4.85	**10yr**	3.68	4.67	5.35	5.98	6.83	**10yr**

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
25yr	0.49	0.74	0.92	1.32	1.73	1.96	**25yr**	1.50	1.92	2.19	2.79	3.53	4.93	5.86	**25yr**	4.36	5.64	6.47	6.97	7.95	**25yr**
50yr	0.53	0.81	1.01	1.46	1.96	2.16	**50yr**	1.69	2.11	2.42	3.09	3.90	5.62	6.78	**50yr**	4.97	6.52	7.49	7.84	8.96	**50yr**
100yr	0.59	0.89	1.12	1.61	2.21	2.40	**100yr**	1.91	2.34	2.68	3.43	4.32	6.42	7.86	**100yr**	5.68	7.55	8.69	8.85	10.08	**100yr**
200yr	0.66	0.99	1.25	1.81	2.53	2.64	**200yr**	2.18	2.58	2.95	3.81	4.76	7.34	9.14	**200yr**	6.50	8.79	10.13	10.01	11.38	**200yr**
500yr	0.76	1.14	1.46	2.13	3.02	3.03	**500yr**	2.61	2.96	3.36	4.39	5.42	8.81	11.20	**500yr**	7.80	10.77	12.43	11.80	13.41	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.33	0.52	0.63	0.85	1.04	1.26	**1yr**	0.90	1.23	1.42	1.82	2.29	2.87	3.29	**1yr**	2.54	3.16	3.63	4.32	4.92	**1yr**
2yr	0.39	0.60	0.74	1.00	1.23	1.46	**2yr**	1.06	1.43	1.67	2.13	2.68	3.33	3.78	**2yr**	2.95	3.64	4.14	4.89	5.55	**2yr**
5yr	0.47	0.73	0.91	1.25	1.59	1.88	**5yr**	1.37	1.84	2.17	2.77	3.48	4.35	5.00	**5yr**	3.85	4.81	5.43	6.23	7.03	**5yr**
10yr	0.56	0.86	1.07	1.50	1.93	2.33	**10yr**	1.67	2.27	2.66	3.42	4.27	5.34	6.20	**10yr**	4.73	5.96	6.66	7.50	8.48	**10yr**
25yr	0.70	1.07	1.33	1.90	2.49	3.08	**25yr**	2.15	3.01	3.54	4.70	5.62	7.02	8.23	**25yr**	6.21	7.92	8.72	9.57	10.82	**25yr**
50yr	0.83	1.26	1.57	2.26	3.04	3.72	**50yr**	2.63	3.64	4.40	5.86	6.90	8.64	10.18	**50yr**	7.65	9.79	10.70	11.53	13.00	**50yr**
100yr	0.98	1.49	1.86	2.69	3.69	4.60	**100yr**	3.19	4.50	5.46	7.31	8.49	10.61	12.59	**100yr**	9.39	12.11	13.12	13.90	15.62	**100yr**
200yr	1.17	1.76	2.23	3.22	4.50	5.66	**200yr**	3.88	5.53	6.79	9.14	10.47	13.04	15.59	**200yr**	11.54	14.99	16.07	16.76	18.80	**200yr**
500yr	1.47	2.19	2.82	4.10	5.83	7.47	**500yr**	5.03	7.30	9.06	12.27	13.82	17.09	20.64	**500yr**	15.13	19.84	21.01	21.45	24.00	**500yr**

Powered by ACIS
Northeast Regional Climate Center

Capacity of a Pipe Flowing Full

Mannings Equation

$$Q = V \times A = \frac{1.49}{n} \times R^{2/3} \times S^{1/2} \times A$$

where:

n = roughness coefficient

= 0.012 HDPE or PVC sewer pipe

R = hydraulic radius = $\frac{\text{cross sectional area}}{\text{wetted perimeter}}$

S = slope or hydraulic gradient

A = cross sectional area (ft2) = 3.14 x r^2 for a pipe flowing full

P = wetted perimeter (ft) = 2 x 3.14 x r for a pipe flowing full

Pipe Diameter (inches)	Pipe Radius (ft)	Mannings n	Slope (%)	$S^{1/2}$	A (ft2)	P (ft)	R	$R^{2/3}$	**Q (cfs)**	V (fps)	Comments
Eastern Drainage System											
48	2	0.012	0.65%	0.081	12.566	12.566	1.000	1.000	**125.8**	10.0	OK for 50 yr storm 122 cfs
36	1.5	0.012	0.65%	0.081	7.069	9.425	0.750	0.825	**58.4**	8.3	OK for West St 18 cfs
24	1	0.012	1.00%	0.100	3.142	6.283	0.500	0.630	**24.6**	7.8	OK for West St 18 cfs
24	1	0.012	1.67%	0.129	3.142	6.283	0.500	0.630	**31.8**	10.1	OK for West St 18 cfs
18	0.75	0.012	1.67%	0.129	1.767	4.712	0.375	0.520	**14.7**	8.3	Too small for West Street
Western Drainage System											
36	1.5	0.012	0.10%	0.032	7.069	9.425	0.750	0.825	**22.9**	3.2	Pipe diameter too large for the flat site conditions
30	1.25	0.012	0.10%	0.032	4.909	7.854	0.625	0.731	**14.1**	2.9	Need two pipes to carry 3hr weighted peak 50 year storm flow = 25 cfs
24	1	0.012	0.10%	0.032	3.142	6.283	0.500	0.630	**7.8**	2.5	Too small
18	0.75	0.012	0.10%	0.032	1.767	4.712	0.375	0.520	**3.6**	2.0	Too small

Washington Park Stormwater Mitigation					
Eastern Drainage Area					
Flows from HydroCAD output for P1-West Street Culvert					
Time	Peak Flow (cfs)	Duration (hrs)			
13.00	17.03	0.25			
13.25	**17.97**	0.25			
13.50	16.77	0.25			
13.75	14.32	0.25			
14.00	11.41	0.25			
					Required HDPE Culvert Sizes:
Instantaneous Peak Flow			18.0	cfs	24" @ 1.67% slope-Capacity=31.8 cfs
One Hour Area Weighted Average =			15.5	cfs	18" @ 2.1% slope- Capacity=16.5 cfs
Western Drainage Area					
Flows from HydroCAD output for P3-West End Avenue Culvert					
Time	Peak Flow (cfs)	Duration (hrs)			
12.50	13.24	0.25			
12.75	22.67	0.25			
13.00	32.16	0.25			
13.25	38.07	0.25			
13.50	**39.62**	0.25			
13.75	37.76	0.25			
14.00	33.40	0.25			
14.25	27.97	0.25			
14.50	23.09	0.25			
14.75	19.43	0.25			
15.00	16.50	0.25			
15.25	14.13	0.25			
15.50	12.23	0.25			
					Required Culverts:
Instantaneous Peak Flow			39.6	cfs	three 30" HDPE culverts
One Hr Area Weighted Average (13-14 hrs) =			36.2	cfs	two 30" plus one 24" HDPE culvert
Two Hr Area Weighted Average (12.75-14.75 hrs)			30.5	cfs	two 30" plus one 18" HDPE culvert
Three Hr Area Weighted Average (12.5-15.5 hrs)			**25.4**	**cfs**	**two 30" HDPE culverts**
Recommend two 30" HDPE culverts = 14.1cfs x 2 = 28.2 cfs total capacity					

TenCate Geosynthetics
North America

Flexible Pavement Analysis Report

Project Name: Parking Lot

Analysis 1 - Hotel Parking Lot | Report Date: 10/27/2015 | Report Run By: John Folts

Initial Road Data (Pre-Reinforcement)

Subgrade Strength Value	Strength Parameter	Subgrade CBR
2.00	CBR, soaked (ASTM D1883)	2.00

Structural Number (SN)	Traffic Volume (ESALs)
4.67	1,963,071

Traffic Volume Calculator Data (ESALs)

Initial Serviceability (ρ_o)	Terminal Serviceability (ρ_t)	Serviceability Loss (ΔPSI)
4.2	2.5	1.7
Reliability % (R)	**Standard Deviation (S_0)**	**Standard Normal Deviate (Z_R)**
85.00	0.45	-1.037
Resilient Modulus (Mr) (psi)	**Unreinforced ESALs**	**Reinforced ESALs**
3,982	1,963,071	1,934,764

No Reinforcement / Stabilization

Layer No.	Material Description	Structural Coefficient	Drainage Coefficient	Thickness (in)	Structural Number (Unreinforced)
1	ACC Surface	0.43	1.00	1.00	0.43
2	ACC Base	0.35	1.00	2.50	0.88
3	Base Course	0.14	1.00	**12.00**	1.68
4	Sub-Base Course	0.14	1.00	12.00	1.68
		Subgrade CBR: 2.00			4.67

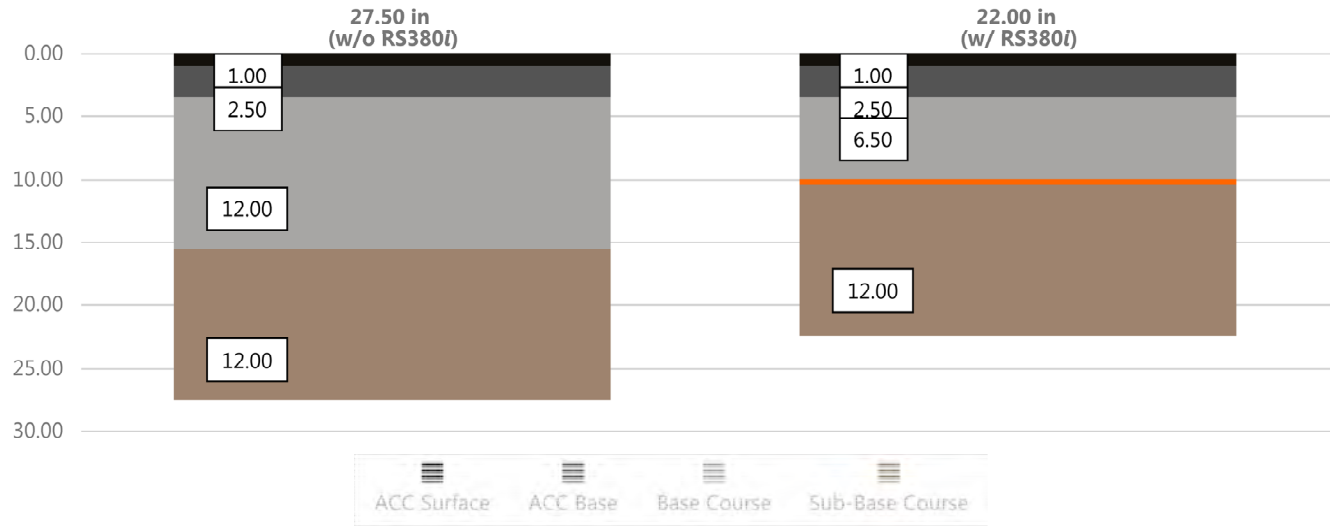
Reinforced / Stabilized - Geosynthetic Used: Mirafi® RS380*i*

Product Spec Sheet for RS380*i*

Layer No.	Material Description	Structural Coefficient	Drainage Coefficient	Thickness (in)	Structural Number (Unreinforced)
1	ACC Surface	0.43	1.00	1.00	0.43
2	ACC Base	0.35	1.00	2.50	0.88
3	Base Course (Reinforced)	0.26	1.00	**6.50**	1.68
		TenCate Mirafi® RS380*i* Geosynthetic			
4	Sub-Base Course	0.14	1.00	12.00	1.68
		Subgrade CBR: 2.00			4.66

NOTE: Structural Numbers represent the results of calculations prior to the rounding of thicknesses and therefore may be slightly different than manual calculations done using the reported thicknesses.

Total Savings Base Course = 5.50 inches, OR 1,075.56 yd3 per lane/mile (45.83% per lane/mile)



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365 South Holland Drive
Pendergrass, GA 30567

Tel 706 693 2226
Tel 888 795 0808

Fax 706 693 4400
www.mirafi.com

APPENDIX C

See Final Design Drawing Set

APPENDIX 2

Notice of Intent (NOI)
MS4 SWPPP Acceptance Form
NYSDEC SPDES General Permit GP-0-15-002
Notice of Termination (NOT)

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR _____
(for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-10-001

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

-IMPORTANT-
RETURN THIS FORM TO THE ADDRESS ABOVE
OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)
Town of Rosendale

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Walsh

Owner/Operator Contact Person First Name
Jeanne

Owner/Operator Mailing Address
1915 Lucas Avenue

City
Cottekill

State: NY
Zip: 12419 -

Phone (Owner/Operator): 8456583159 - 3159
Fax (Owner/Operator): 8456588744 - 8744

Email (Owner/Operator)
supervisor@townofrosendale.com

FED TAX ID
146002408 (not required for individuals)

Project Site Information

Project/Site Name

Washington Park Stormwater Mitigation

Street Address (NOT P.O. BOX)

Washington Avenue

Side of Street

○ **North** ◉ **South** ○ **East** ○ **West**

City/Town/Village (THAT ISSUES BUILDING PERMIT)

Rosendale

State: NY

Zip: 12472 -

County: Ulster

DEC Region:

Name of Nearest Cross Street

NYS Route 32 and Washington Avenue

Distance to Nearest Cross Street (Feet)

10

Project In Relation to Cross Street

○ **North** ◉ **South** ○ **East** ○ **West**

Tax Map Numbers
Section-Block-Parcel

62.82-3-5

Tax Map Numbers

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you **must** go to the NYSDEC Stormwater Interactive Map on the DEC website at:

www.dec.ny.gov/imsmaps/stormwater/viewer.htm

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site, go to the tool boxes on the top and choose "i"(identify). Then click on the center of your site and a new window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting): 74 011

Y Coordinates (Northing): 41 1393

2. What is the nature of this construction project?

○ **New Construction**

○ **Redevelopment with increase in impervious area**

◉ **Redevelopment with no increase in impervious area**

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use

- ○ FOREST
- ○ PASTURE/OPEN LAND
- ○ CULTIVATED LAND
- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ● LINEAR UTILITY
- ○ PARKING LOT
- ○ OTHER

Post-Development Future Land Use

- ○ SINGLE FAMILY HOME — Number of Lots
- ○ SINGLE FAMILY SUBDIVISION
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ MUNICIPAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ● LINEAR UTILITY (water, sewer, gas, etc.)
- ○ PARKING LOT
- ○ CLEARING/GRADING ONLY
- ○ DEMOLITION, NO REDEVELOPMENT
- ○ WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
- ○ OTHER

***Note**: for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area
2720.0	2.32.3	0.10.1	0.10.1

5. Do you plan to disturb more than 5 acres of soil at any one time? ○ **Yes** ● **No**

6. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	B	C	D
%	50 %	%	50 %

7. Is this a phased project? ○ **Yes** ○ **No**

8. Enter the planned start and end dates of the disturbance activities.

Start Date 07/01/2017 - **End Date** 11/30/2017

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

Name

Rondout Creek

9a. Type of waterbody identified in Question 9?

- ○ Wetland / State Jurisdiction On Site (Answer 9b)
- ○ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 9b)
- ○ Wetland / Federal Jurisdiction Off Site
- ○ Stream / Creek On Site
- ○ Stream / Creek Off Site
- ○ River On Site
- ● River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

9b. How was the wetland identified?

- ○ Regulatory Map
- ○ Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ○ Other (identify)

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-10-001? ○ **Yes** ● **No**

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-10-001? ○ **Yes** ● **No**

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? ○ **Yes** ● **No**
If no, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ○ **Yes** ● **No**
If Yes, what is the acreage to be disturbed?

.

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ○ **Yes** ● **No**

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ◉ **Yes** ○ **No** ○ **Unknown**

16. What is the name of the municipality/entity that owns the separate storm sewer system?

Town of Rosendale

17. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ **Yes** ◉ **No** ○ **Unknown**

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law? ○ **Yes** ◉ **No**

19. Is this property owned by a state authority, state agency, federal government or local government? ◉ **Yes** ○ **No**

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) ○ **Yes** ◉ **No**

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)? ◉ **Yes** ○ **No**

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)? ○ **Yes** ◉ **No**
If No, skip questions 23 and 27-39.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual? ○ **Yes** ○ **No**

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ☑ **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer
Brinnier and Larios, P.C.

Contact Name (Last, Space, First)
Dennis M. Larios, P.E.

Mailing Address
67 Maiden Lane

City
Kingston

State Zip
NY 12401 -

Phone
8453387622 - 7622

Fax
8453387660 - 7660

Email
dmlarios@blengineers.com

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-10-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name
Dennis

MI
M

Last Name
Larios

Signature

Date
/ /

25. Has a construction sequence schedule for the planned management practices been prepared? ◉ Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ☑ Check Dams
- ○ Construction Road Stabilization
- ☑ Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ☑ Silt Fence
- ☑ Stabilized Construction Entrance
- ☑ Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ☑ Grassed Waterway
- ○ Mulching
- ○ Protecting Vegetation
- ○ Recreation Area Improvement
- ○ Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ○ Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ○ Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

Post-construction Stormwater Management Practice (SMP) Requirements

Important: Completion of Questions 27-39 is not required if response to Question 22 is No.

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- ○ **Preservation of Undisturbed Areas**
- ○ **Preservation of Buffers**
- ○ **Reduction of Clearing and Grading**
- ○ **Locating Development in Less Sensitive Areas**
- ○ **Roadway Reduction**
- ○ **Sidewalk Reduction**
- ○ **Driveway Reduction**
- ○ **Cul-de-sac Reduction**
- ○ **Building Footprint Reduction**
- ○ **Parking Reduction**

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- ○ All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).
- ○ Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

Total WQv Required

☐☐☐.☐☐☐ **acre-feet**

29. Identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

	Total Contributing Area (acres)		Total Contributing Impervious Area(acres)
RR Techniques (Area Reduction)			
○ Conservation of Natural Areas (RR-1) ...	___.___	and/or	___.___
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)	___.___	and/or	___.___
○ Tree Planting/Tree Pit (RR-3)	___.___	and/or	___.___
○ Disconnection of Rooftop Runoff (RR-4)..	___.___	and/or	___.___
RR Techniques (Volume Reduction)			
○ Vegetated Swale (RR-5)			___.___
○ Rain Garden (RR-6)			___.___
○ Stormwater Planter (RR-7)			___.___
○ Rain Barrel/Cistern (RR-8)			___.___
○ Porous Pavement (RR-9)			___.___
○ Green Roof (RR-10)			___.___
Standard SMPs with RRv Capacity			
○ Infiltration Trench (I-1)			___.___
○ Infiltration Basin (I-2)			___.___
○ Dry Well (I-3)			___.___
○ Underground Infiltration System (I-4)			___.___
○ Bioretention (F-5)			___.___
○ Dry Swale (O-1)			___.___
Standard SMPs			
○ Micropool Extended Detention (P-1)			___.___
○ Wet Pond (P-2)			___.___
○ Wet Extended Detention (P-3)			___.___
○ Multiple Pond System (P-4)			___.___
○ Pocket Pond (P-5)			___.___
○ Surface Sand Filter (F-1)			___.___
○ Underground Sand Filter (F-2)			___.___
○ Perimeter Sand Filter (F-3)			___.___
○ Organic Filter (F-4)			___.___
○ Shallow Wetland (W-1)			___.___
○ Extended Detention Wetland (W-2)			___.___
○ Pond/Wetland System (W-3)			___.___
○ Pocket Wetland (W-4)			___.___
○ Wet Swale (O-2)			___.___

Table 2 - Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Alternative SMP	Total Contributing Impervious Area(acres)
○ **Hydrodynamic**	___.___
○ **Wet Vault**	___.___
○ **Media Filter**	___.___
○ **Other** _____	___.___

Provide the name and manufacturer of the Alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Name _____

Manufacturer _____

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29.

Total RRv provided

___.___ **acre-feet**

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28).

○ **Yes** ○ **No**

If Yes, go to question 36.
If No, go to question 32.

32. Provide the Minimum RRv required based on HSG.
[Minimum RRv Required = (P)(0.95)(Ai)/12, Ai=(S)(Aic)]

Minimum RRv Required

___.___ **acre-feet**

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

○ **Yes** ○ **No**

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

Note: Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

WQv Provided

[ ][ ][ ].[ ][ ][ ] **acre-feet**

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a). [ ][ ][ ].[ ][ ][ ]

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)? ○ **Yes** ○ **No**

If Yes, go to question 36.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.

CPv Required

[ ][ ][ ].[ ][ ][ ] **acre-feet**

CPv Provided

[ ][ ][ ].[ ][ ][ ] **acre-feet**

36a. The need to provide channel protection has been waived because:

○ Site discharges directly to tidal waters or a fifth order or larger stream.

○ Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

Total Overbank Flood Control Criteria (Qp)

Pre-Development

[ ][ ][ ].[ ][ ][ ] **CFS**

Post-development

[ ][ ][ ].[ ][ ][ ] **CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development

[ ][ ][ ].[ ][ ][ ] **CFS**

Post-development

[ ][ ][ ].[ ][ ][ ] **CFS**

37a. The need to meet the Qp and Qf criteria has been waived because:

- ○ Site discharges directly to tidal waters or a fifth order or larger stream.
- ○ Downstream analysis reveals that the Qp and Qf controls are not required

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ○ **Yes** ○ **No**

If Yes, Identify the entity responsible for the long term Operation and Maintenance

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required(#28). (See question 32a) This space can also be used for other pertinent project information.

40. Identify other DEC permits, existing and new, that are required for this project/facility.

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Solid Waste
- ○ Navigable Waters Protection / Article 15
- ○ Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ○ Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15
- ○ Endangered or Threatened Species(Incidental Take Permit)
- ○ Individual SPDES
- ○ SPDES Multi-Sector GP NYR
- ○ Other
- ○ None

41. Does this project require a US Army Corps of Engineers Wetland Permit? ○ **Yes** ◉ **No**
If Yes, Indicate Size of Impact. .

42. Is this project subject to the requirements of a regulated, traditional land use control MS4? ◉ **Yes** ○ **No**
(If No, skip question 43)

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ○ **Yes** ◉ **No**

44. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. NYR20A418

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name: Jeanne

MI: L

Print Last Name: Walsh

Owner/Operator Signature:

Date: / /

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	Town of Rosendale
2. Contact Person:	Jeanne L. Walsh
3. Street Address:	1915 Lucas Avenue
4. City/State/Zip:	Cottekill, New York 12419
II. Project Site Information	
5. Project/Site Name:	Washington Park Stormwater Mitigation
6. Street Address:	Washington Avenue
7. City/State/Zip:	Rosendale, New York 12472
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	NYSDEC Region 3
9. Title/Position:	
10. Date Final SWPPP Reviewed and Accepted:	
IV. Regulated MS4 Information	
11. Name of MS4:	Town of Rosendale
12. MS4 SPDES Permit Identification Number: NYR20A	418
13. Contact Person:	Nicholas Wulczyn
14. Street Address:	1915 Lucas Avenue
15. City/State/Zip:	Cottekill, New York 12419
16. Telephone Number:	845-658-3159 Ext. 4

(NYS DEC - MS4 SWPPP Acceptance Form - January 2010)

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s).
Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name: Nicholas Wulczyn

Title/Position: Building Inspector, Stormwater Officer

Signature:

Date:

VI. Additional Information

The Town of Rosendale is both the project sponsor and a MS4 community. As such, review of the SWPPP is redirected to NYSDEC Region 3 Representatives.

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP-0-15-002

Issued Pursuant to Article 17, Titles 7, 8 and Article 70
of the Environmental Conservation Law

Effective Date: January 29, 2015 Expiration Date: January 28, 2020

John J. Ferguson
Chief Permit Administrator

1 / 12 / 15

Authorized Signature Date

Address: NYS DEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

PREFACE

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System ("NPDES")* permit or by a state permit program. New York's *State Pollutant Discharge Elimination System ("SPDES")* is a NPDES-approved program with permits issued in accordance with the *Environmental Conservation Law ("ECL").*

This general permit ("permit") is issued pursuant to Article 17, Titles 7, 8 and Article 70 of the ECL. An *owner or operator* may obtain coverage under this permit by submitting a Notice of Intent ("NOI") to the Department. Copies of this permit and the NOI for New York are available by calling (518) 402-8109 or at any New York State Department of Environmental Conservation ("the Department") regional office (see Appendix G).They are also available on the Department's website at:

http://www.dec.ny.gov/

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of "*construction activity*", as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a point source and therefore, pursuant to Article 17-0505 of the ECL, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. They cannot wait until there is an actual *discharge* from the construction site to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES
FROM CONSTRUCTION ACTIVITIES

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Part I. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

This permit authorizes stormwater *discharges* to *surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;

2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State.*

3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

B. Effluent Limitations Applicable to Discharges from Construction Activities

*Discharge*s authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated August 2005, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the Stormwater Pollution Prevention Plan ("SWPPP") the reason(s) for the deviation or alternative design and provide information

which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:

   (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s;

   (ii) Control stormwater *discharge*s to *minimize* channel and streambank erosion and scour in the immediate vicinity of the *discharge* points;

   (iii) *Minimize* the amount of soil exposed during *construction activity*;

   (iv) *Minimize* the disturbance of *steep slopes*;

   (v) *Minimize* sediment *discharge*s from the site;

   (vi) Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, unless *infeasible*;

   (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted; and

   (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover.

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

c. **Dewatering**. *Discharge*s from dewatering activities, including *discharge*s

from dewatering of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:

(i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;

(ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and

(iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Prohibited *Discharge*s.** The following *discharge*s are prohibited:

(i) Wastewater from washout of concrete;

(ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

(iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;

(iv) Soaps or solvents used in vehicle and equipment washing; and

(v) Toxic or hazardous substances from a spill or other release.

f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion

at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices ("SMPs") are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. ***Sizing Criteria* for *New Development***

(i) Runoff Reduction Volume ("RRv"): Reduce the total Water Quality Volume ("WQv") by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible.*

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual. The remaining portion of the total WQv

that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume ("Cpv"): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:

(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or

(2) The site *discharge*s directly to tidal waters, or fifth order or larger streams.

(iv) Overbank Flood Control Criteria ("Qp"): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:

(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or

(2) A downstream analysis reveals that overbank control is not required.

(v) Extreme Flood Control Criteria ("Qf"): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:

(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or

(2) A downstream analysis reveals that overbank control is not required.

b. ***Sizing Criteria* for *New Development* in Enhanced Phosphorus Removal Watershed**

(i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be calculated in accordance with the criteria in Section 10.3 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or

standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible.*

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:

(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or

(2) The site *discharge*s directly to tidal waters, or fifth order or larger streams.

(iv) Overbank Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:

(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that overbank control is not required.

(v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:

(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that overbank control is not required.

c. ***Sizing Criteria* for *Redevelopment Activity***

(Part I.C.2.c.i)

(i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.

(1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or
(2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or
(3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or
(4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

(ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iii) Overbank Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(Part I.C.2.c.iv)

(iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

d. ***Sizing Criteria*** **for Combination of** ***Redevelopment Activity*** **and** ***New Development***

Construction projects that include both *New Development* and *Redevelopment Activity* shall provide post-construction stormwater management controls that meet the *sizing criteria* calculated as an aggregate of the *Sizing Criteria* in Part I.C.2.a. or b. of this permit for the *New Development* portion of the project and Part I.C.2.c of this permit for *Redevelopment Activity* portion of the project.

D. Maintaining Water Quality

The Department expects that compliance with the conditions of this permit will control *discharge*s necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharge*s authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharge*s authorized by this permit are causing or contributing to a violation of *water quality standards*, or

if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharge*s will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

E. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.

2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharge*s from *construction activities*.

3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater *discharges* may be authorized by this permit: *discharge*s from firefighting activities; fire hydrant flushings; waters to which cleansers or other components have not been added that are used to wash vehicles or control dust in accordance with the SWPPP, routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; uncontaminated *groundwater* or spring water; uncontaminated *discharge*s from construction site de-watering operations; and foundation or footing drains where flows are not contaminated with process materials such as solvents. For those entities required to obtain coverage under this permit, and who *discharge* as noted in this paragraph, and with the exception of flows from firefighting activities, these *discharge*s must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.

4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

F. Activities Which Are Ineligible for Coverage Under This General Permit

All of the following are **not** authorized by this permit:

(Part I.F)

1. *Discharge*s after *construction activities* have been completed and the site has undergone *final stabilization*;

2. *Discharge*s that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;

3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;

4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an endangered or threatened species unless the *owner or operator* has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.C.2 of this permit.

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;

6. *Construction activities* for residential, commercial and institutional projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which disturb one or more acres of land with no existing *impervious cover*; and

   c. Which are undertaken on land with a Soil Slope Phase that is identified as an E or F, or the map unit name is inclusive of 25% or greater slope, on the United States Department of Agriculture ("USDA") Soil Survey for the County where the disturbance will occur.

7. *Construction activities* for linear transportation projects and linear utility projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which disturb two or more acres of land with no existing *impervious cover*; and

   c. Which are undertaken on land with a Soil Slope Phase that is identified as an E or F, or the map unit name is inclusive of 25% or greater slope, on the USDA Soil Survey for the County where the disturbance will occur.

(Part I.F.8)

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.C.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:

   a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the construction site within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the construction site within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.

      - 1-5 acres of disturbance - 20 feet
      - 5-20 acres of disturbance - 50 feet
      - 20+ acres of disturbance - 100 feet, or

   b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
      (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
      (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
      (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
      (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or

   c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:
      (i) No Affect
      (ii) No Adverse Affect

(Part I.F.8.c.iii)

(iii) Executed Memorandum of Agreement, or

d. Documentation that:

(i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

9. *Discharge*s from *construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

II. Part II. OBTAINING PERMIT COVERAGE

A. Notice of Intent (NOI) Submittal

1. An *owner or operator* of a *construction activity* that is <u>not</u> subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed NOI form to the Department in order to be authorized to *discharge* under this permit. An *owner or operator* shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (http://www.dec.ny.gov/). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address.

NOTICE OF INTENT
NYS DEC, Bureau of Water Permits
625 Broadway, 4th Floor
Albany, New York 12233-3505

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the "MS4 SWPPP Acceptance" form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department. An *owner or operator* shall use either the electronic (eNOI) or paper version of the NOI.

   The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the address in Part II.A.1.

(Part II.A.2)

The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.E. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4*.

3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.

4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

B. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.

2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied <u>all</u> of the following criteria:

   a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (http://www.dec.ny.gov/) for more information,

   b. where required, all necessary Department permits subject to the *Uniform Procedures Act ("UPA")* (see 6 NYCRR Part 621) have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain *UPA* permits must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

   c. the final SWPPP has been prepared, and

   d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.

3. An *owner or operator* that has satisfied the requirements of Part II.B.2 above

(Part II.B.3)

will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

a. For *construction activities* that are not subject to the requirements of a *regulated, traditional land use control MS4*:

   (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or

   (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has not been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;

   (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:

   (i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed "*MS4* SWPPP Acceptance" form, or

   (ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed "MS4 SWPPP Acceptance" form.

4. The Department may suspend or deny an *owner's or operator's* coverage

under this permit if the Department determines that the SWPPP does not meet the permit requirements. In accordance with statute, regulation, and the terms and conditions of this permit, the Department may deny coverage under this permit and require submittal of an application for an individual SPDES permit based on a review of the NOI or other information pursuant to Part II.

5. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.B. of this permit.

C. General Requirements For Owners or Operators With Permit Coverage

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination ("NOT") has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-15-002), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, and all documentation necessary to demonstrate eligibility with this permit at the construction site until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:
   a. The *owner or operator* shall

have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated August 2005.

c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

d. The *owner or operator* shall install any additional site specific practices needed to protect water quality.

e. The *owner or operator* shall include the requirements above in their SWPPP.

4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

5. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the *regulated, traditional land use control MS4* in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice

(Part II.D)

D. Permit Coverage for Discharges Authorized Under GP-0-10-001

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-10-001), an *owner or operator* of *a construction activity* with coverage under GP-0-10-001, as of the effective date of GP-0-15-002, shall be authorized to *discharge* in accordance with GP-0-15-002, unless otherwise notified by the Department.

   An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-15-002.

E. Change of *Owner or Operator*

2. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.A.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or operator* was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

(Part III)

III. Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.

3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.

4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP:

   a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

   b. whenever there is a change in design, construction, or operation at the construction site that has or could have an effect on the *discharge* of *pollutants*; and

   c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* the Department or other regulatory authority.

5. The Department may notify the *owner or operator* at any time that the

(Part III.A.5)

SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.C.4. of this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor.* The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

   The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

   > "I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharge*s from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

   In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the

trained contractor responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the construction site. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

B. Required SWPPP Contents

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated August 2005. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:

   a. Background information about the scope of the project, including the location, type and size of project;

   b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge*(s);

   c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);

   d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other

activity at the site that results in soil disturbance;

e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;

f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated August 2005, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;

g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated August 2005;

j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;

k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the construction site; and

l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated August 2005. Include the reason for the deviation or alternative design

and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

   Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

   The post-construction stormwater management practice component of the SWPPP shall include the following:

   a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

   b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;

   c. A Stormwater Modeling and Analysis Report that includes:

      (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;

      (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;

      (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;

      (iv) Summary table, with supporting calculations, which demonstrates

that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;

(v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and

(vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;

d. Soil testing results and locations (test pits, borings);

e. Infiltration test results, when required; and

f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria,* Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

C. Required SWPPP Components by Project Type

Unless otherwise notified by the Department, *owners or operators* of *construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators* of the *construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

IV. Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York, or protect the public health and safety and/or the environment.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* <u>and</u> all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

C. Qualified Inspector Inspection Requirements

(Part IV.C)

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- Registered Landscape Architect, or
- someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].

1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, <u>with the exception of</u>:

   a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is <u>not</u> located in one of the watersheds listed in Appendix C and <u>not</u> directly discharging to one of the 303(d) segments listed in Appendix E;

   b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is <u>not</u> located in one of the watersheds listed in Appendix C and <u>not</u> directly discharging to one of the 303(d) segments listed in Appendix E;

   c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

   d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:

   a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

   b. For construction sites where soil disturbance activities are on-going and

the *owner or operator* has received authorization in accordance with Part II.C.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* <u>and</u> all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization,* <u>and</u> all temporary, structural erosion and sediment control measures have been removed*;* and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.A.1 of this permit.

e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall

be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization,* all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site, and all points of *discharge* from the construction site.

4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. A description of the condition of the runoff at all points of *discharge* from the construction site. This shall include identification of any *discharges* of sediment from the construction site. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;

f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;

g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;

(Part IV.C.4.i)

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

k. Identification and status of all corrective actions that were required by previous inspection; and

l. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the *qualified inspector.* Pursuant to Part II.C.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

V. Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.A.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.

(Part V.A.2)

2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:

   a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

   b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;

   c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.E. of this permit.

   d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.

3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.

4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the "MS4 Acceptance" statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) required in Part V.A.3. of this permit.

(Part V.A.5)

5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

   a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

   b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),

   c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record,

   d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

VI. Part VI. REPORTING AND RETENTION OF RECORDS

A. Record Retention

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

B. Addresses

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.A.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

(Part VII)

VII. Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

B. Continuation of the Expired General Permit

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

C. Enforcement

Failure of the *owner or operator,* its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

E. Duty to Mitigate

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. Duty to Provide Information

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

G. Other Information

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit , or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

H. Signatory Requirements

1. All NOIs and NOTs shall be signed as follows:

   a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

      (i) a president, secretary, treasurer, or vice-president of the

corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

(ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) the chief executive officer of the agency, or

(ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named

individual or any individual occupying a named position) and,

c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.

3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.

4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4,* or by a duly authorized representative of that person.

   It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

J. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. Requirement to Obtain Coverage Under an Alternative Permit

1. The Department may require any *owner or operator* authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any *discharge*r authorized by a general permit to apply for an individual SPDES permit, it shall notify the *discharge*r in writing that a permit application is required. This notice shall include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the *owner or operator* to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from *owner or operator* receipt of the notification letter, whereby the authorization to

discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge*(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

L. Proper Operation and Maintenance

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

M. Inspection and Entry

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a construction site which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the *owner's or operator's* premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.

4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

(Part VII.N)

N. Permit Actions

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

O. Definitions

Definitions of key terms are included in Appendix A of this permit.

P. Re-Opener Clause

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with *construction activity* covered by this permit, the *owner or operator* of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.

2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

Q. Penalties for Falsification of Forms and Reports

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

R. Other Permits

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

VIII. **APPENDIX A**

Definitions

Alter Hydrology from Pre to Post-Development Conditions - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer - means a sewer that is designed to collect and convey both “sewage” and “stormwater”.

Commence (Commencement of) Construction Activities - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for “*Construction Activity(ies)*” also.

***Construction Activity*(ies) -** means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Direct Discharge (to a specific surface waterbody) - means that runoff flows from a construction site by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a construction site to a separate storm sewer system and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

Discharge(s) - means any addition of any pollutant to waters of the State through an outlet or point source.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

Equivalent (Equivalence) – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied

on all disturbed areas that are not covered by permanent structures, concrete or pavement.

General SPDES permit - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

Groundwater(s) - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

Historic Property – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State
or National Registers of Historic Places.

Impervious Area (Cover) - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

Larger Common Plan of Development or Sale - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term “plan” in “larger common plan of development or sale” is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same “common plan” is not concurrently being disturbed.

Minimize – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters,

ditches, man-made
channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State*;*

(ii) Designed or used for collecting or conveying stormwater;

(iii) Which is not a *combined sewer*; and

(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

New Development – means any land disturbance that does meet the definition of Redevelopment Activity included in this appendix.

NOI Acknowledgment Letter - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; and/or an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications.

Performance Criteria – means the design criteria listed under the "Required Elements" sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf) in Part I.C.2. of the permit.

Pollutant - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York..

Redevelopment Activity(ies) – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is required to gain coverage under New York State DEC's SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s).

Routine Maintenance Activity - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Stream bank restoration projects (does not include the placement of spoil material),
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that makes the transition between the road shoulder and the ditch or embankment,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or embankment,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

Site limitations – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), Overbank Flood (Qp), and Extreme Flood (Qf).

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

Steep Slope – means land area with a Soil Slope Phase that is identified as an E or F, or

the map unit name is inclusive of 25% or greater slope, on the United States Department of Agriculture ("USDA") Soil Survey for the County where the disturbance will occur.

Surface Waters of the State - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Loads (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for point source discharges, load allocations (LAs) for nonpoint sources, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

Uniform Procedures Act (UPA) Permit - means a permit required under 6 NYCRR Part

621 of the Environmental Conservation Law (ECL), Article 70.

Water Quality Standard - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

IX. APPENDIX B

Required SWPPP Components by Project Type

Table 1
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres: • Single family home not located in one of the watersheds listed in Appendix C or not *directly discharging* to one of the 303(d) segments listed in Appendix E • Single family residential subdivisions with 25% or less impervious cover at total site build-out and not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E • Construction of a barn or other agricultural building, silo, stock yard or pen.
The following construction activities that involve soil disturbances of one (1) or more acres of land: • Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains • Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects • Bike paths and trails • Sidewalk construction projects that are not part of a road/ highway construction or reconstruction project • Slope stabilization projects • Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics • Spoil areas that will be covered with vegetation • Land clearing and grading for the purposes of creating vegetated open space (i.e. recreational parks, lawns, meadows, fields), excluding projects that *alter hydrology from pre to post development* conditions • Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions • Demolition project where vegetation will be established and no redevelopment is planned • Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover* • Structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State", excluding projects that involve soil disturbances of less than five acres and construction activities that include the construction or reconstruction of impervious area
The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land: • All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

Table 2

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other agricultural building(e.g. silo) and structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional, includes hospitals, prisons, schools and colleges
- Industrial facilities, includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW's and water treatment plants
- Office complexes
- Sports complexes
- Racetracks, includes racetracks with earthen (dirt) surface
- Road construction or reconstruction
- Parking lot construction or reconstruction
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover,* and constructed as part of an over-head electric transmission line project , wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- All other construction activities that include the construction or reconstruction of *impervious area* <u>or</u> *alter the hydrology from pre to post development* conditions, <u>and</u> are not listed in Table 1

X. APPENDIX C

Watersheds Where Enhanced Phosphorus Removal Standards Are Required

Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

- Entire New York City Watershed located east of the Hudson River - Figure 1
- Onondaga Lake Watershed - Figure 2
- Greenwood Lake Watershed -Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Figure 1 - New York City Watershed East of the Hudson

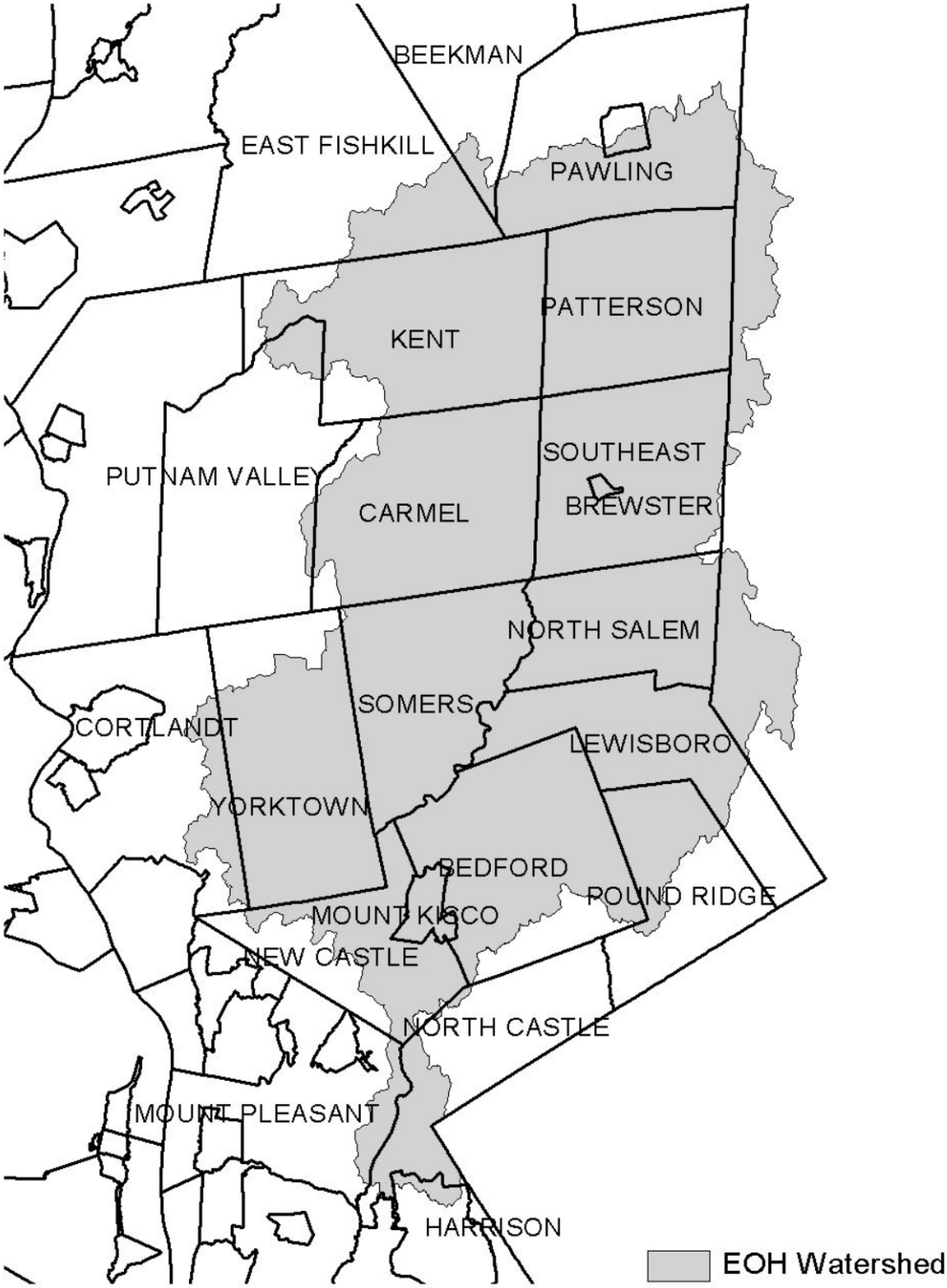


Figure 2 - Onondaga Lake Watershed

Figure 3 - Greenwood Lake Watershed

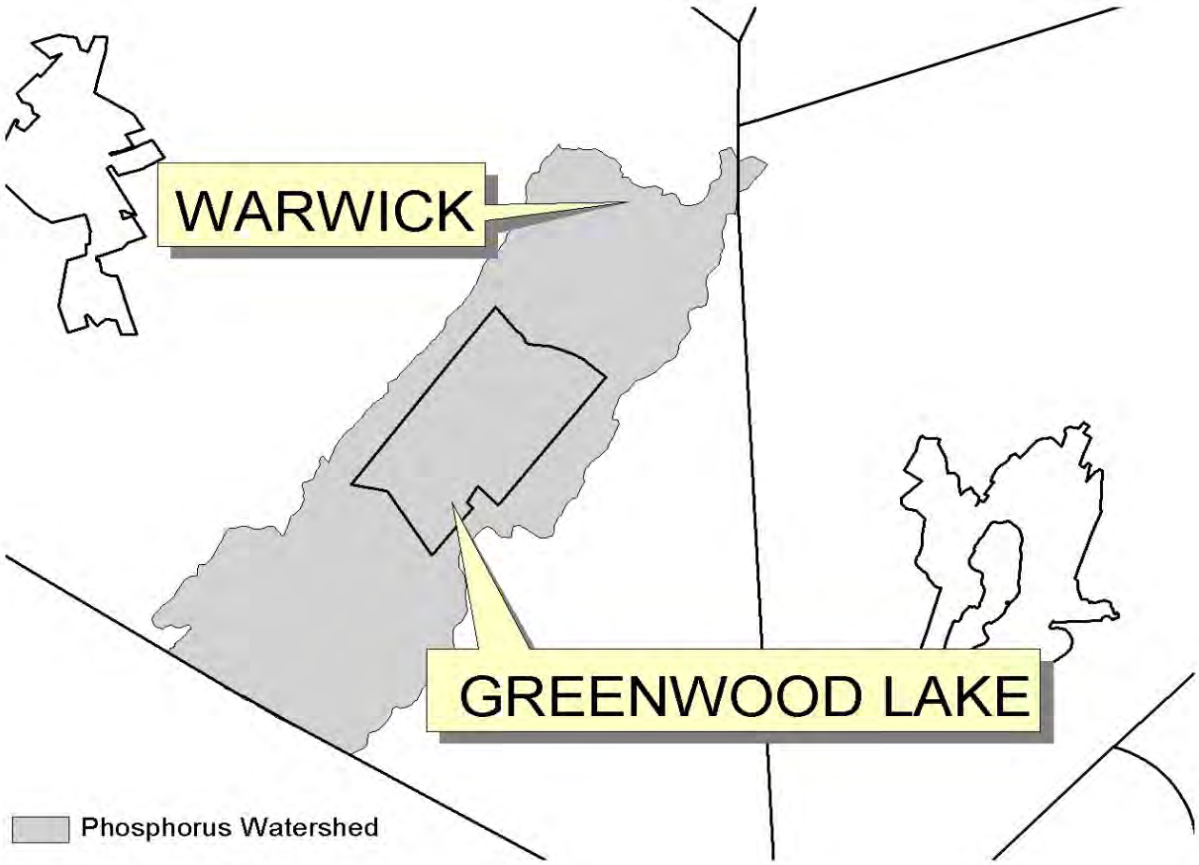


Figure 4 - Oscawana Lake Watershed

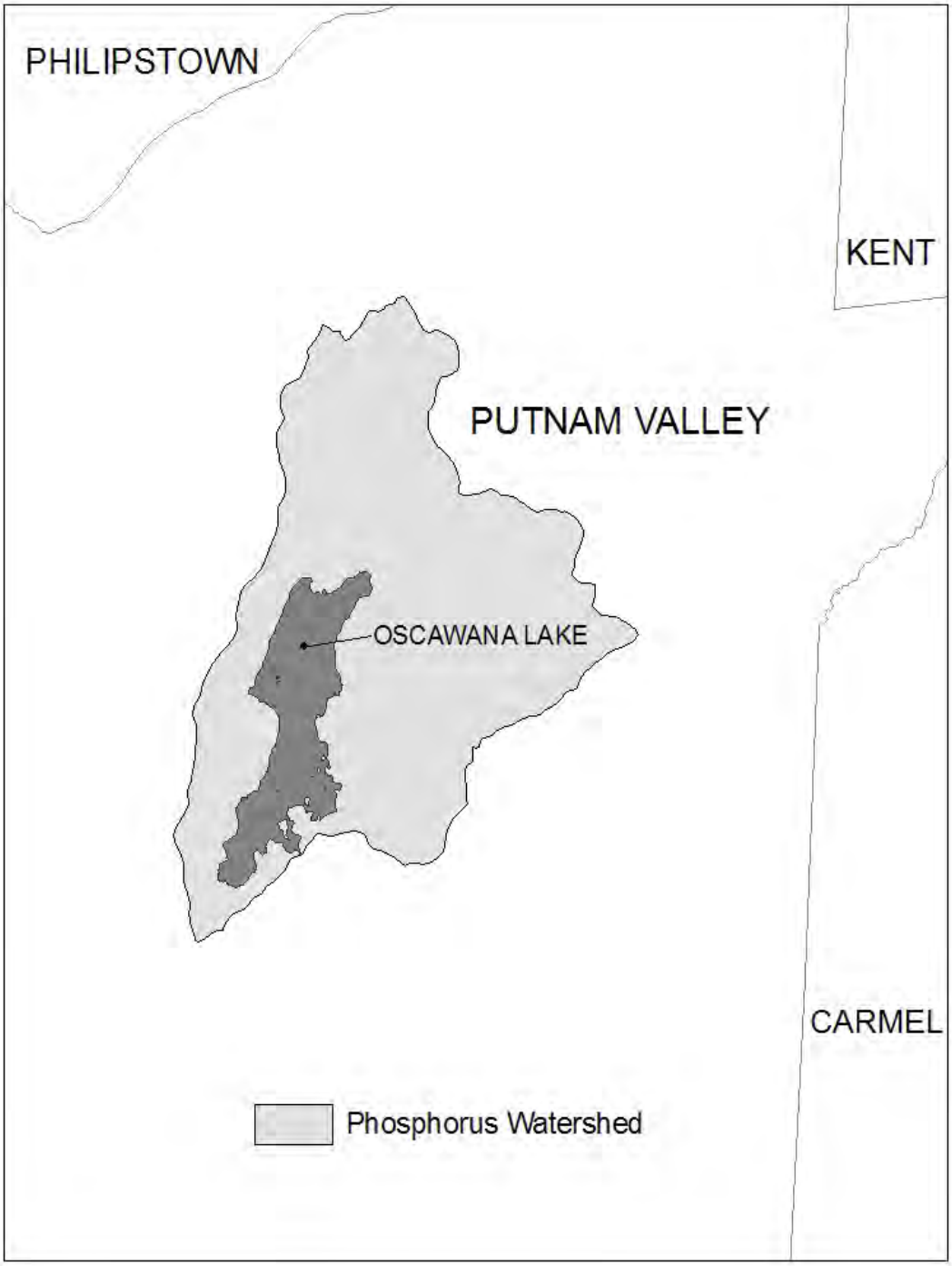
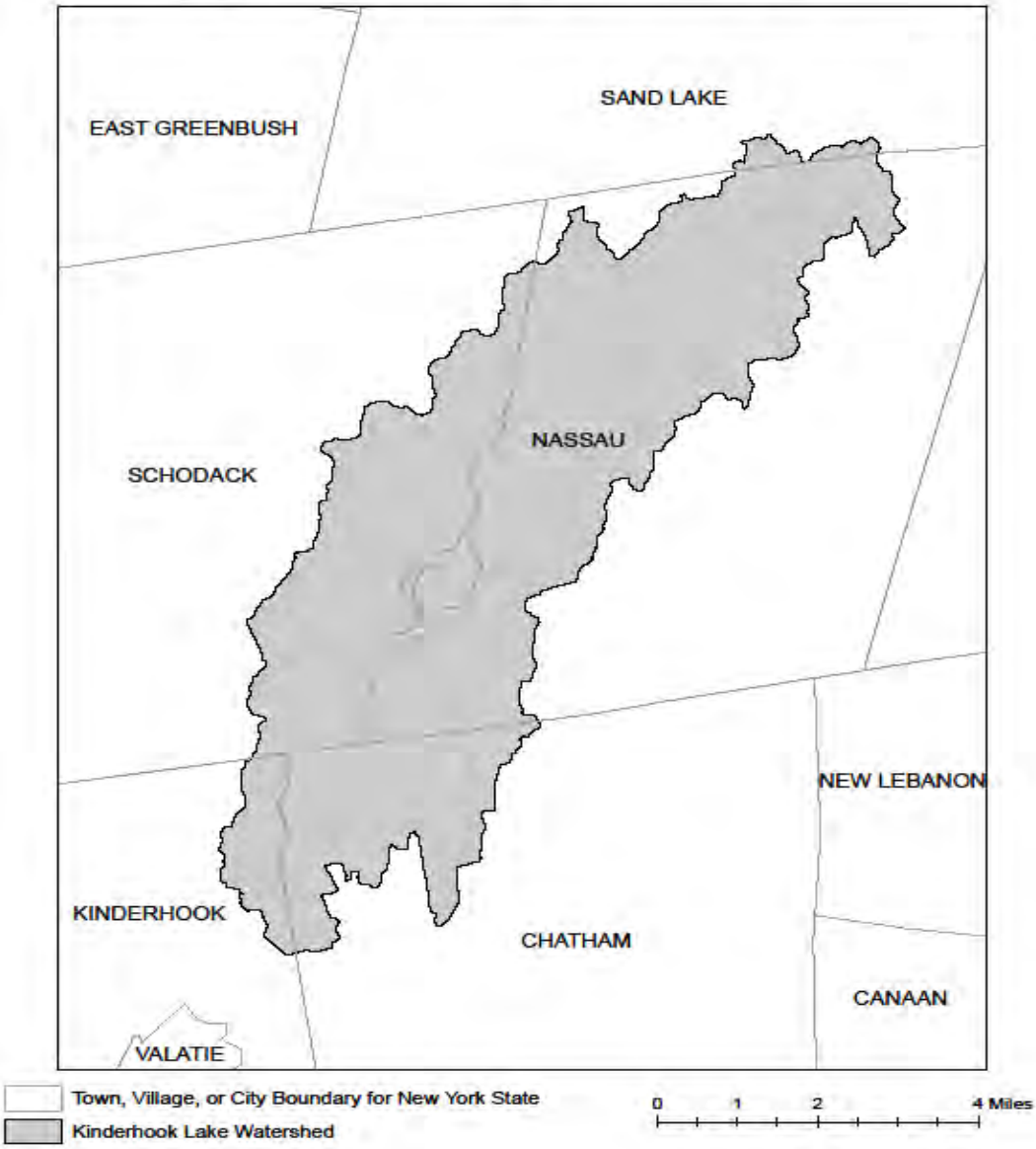


Figure 5: Kinderhook Lake Watershed



XI. APPENDIX D

Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.

Entire New York City Watershed that is located east of the Hudson River - See Figure 1 in Appendix C

XII. APPENDIX E

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	COUNTY	WATERBODY
Albany	Ann Lee (Shakers) Pond, Stump Pond	Greene	Sleepy Hollow Lake
Albany	Basic Creek Reservoir	Herkimer	Steele Creek tribs
Allegheny	Amity Lake, Saunders Pond	Kings	Hendrix Creek
Bronx	Van Cortlandt Lake	Lewis	Mill Creek/South Branch and tribs
Broome	Whitney Point Lake/Reservoir	Livingston	Conesus Lake
Broome	Fly Pond, Deer Lake	Livingston	Jaycox Creek and tribs
Broome	Minor Tribs to Lower Susquehanna (north)	Livingston	Mill Creek and minor tribs
		Livingston	Bradner Creek and tribs
Cattaraugus	Allegheny River/Reservoir	Livingston	Christie Creek and tribs
Cattaraugus	Case Lake	Monroe	Lake Ontario Shoreline, Western
Cattaraugus	Linlyco/Club Pond	Monroe	Mill Creek/Blue Pond Outlet and tribs
Cayuga	Duck Lake	Monroe	Rochester Embayment - East
Chautauqua	Chautauqua Lake, North	Monroe	Rochester Embayment - West
Chautauqua	Chautauqua Lake, South	Monroe	Unnamed Trib to Honeoye Creek
Chautauqua	Bear Lake	Monroe	Genesee River, Lower, Main Stem
Chautauqua	Chadakoin River and tribs	Monroe	Genesee River, Middle, Main Stem
Chautauqua	Lower Cassadaga Lake	Monroe	Black Creek, Lower, and minor tribs
Chautauqua	Middle Cassadaga Lake	Monroe	Buck Pond
Chautauqua	Findley Lake	Monroe	Long Pond
Clinton	Great Chazy River, Lower, Main Stem	Monroe	Cranberry Pond
Columbia	Kinderhook Lake	Monroe	Mill Creek and tribs
Columbia	Robinson Pond	Monroe	Shipbuilders Creek and tribs
Dutchess	Hillside Lake	Monroe	Minor tribs to Irondequoit Bay
Dutchess	Wappinger Lakes	Monroe	Thomas Creek/White Brook and tribs
Dutchess	Fall Kill and tribs	Nassau	Glen Cove Creek, Lower, and tribs
Erie	Green Lake	Nassau	LI Tribs (fresh) to East Bay
Erie	Scajaquada Creek, Lower, and tribs	Nassau	East Meadow Brook, Upper, and tribs
Erie	Scajaquada Creek, Middle, and tribs	Nassau	Hempstead Bay
Erie	Scajaquada Creek, Upper, and tribs	Nassau	Hempstead Lake
Erie	Rush Creek and tribs	Nassau	Grant Park Pond
Erie	Ellicott Creek, Lower, and tribs	Nassau	Beaver Lake
Erie	Beeman Creek and tribs	Nassau	Camaans Pond
Erie	Murder Creek, Lower, and tribs	Nassau	Halls Pond
Erie	South Branch Smoke Cr, Lower, and tribs	Nassau	LI Tidal Tribs to Hempstead Bay
		Nassau	Massapequa Creek and tribs
Erie	Little Sister Creek, Lower, and tribs	Nassau	Reynolds Channel, east
Essex	Lake George (primary county: Warren)	Nassau	Reynolds Channel, west
Genesee	Black Creek, Upper, and minor tribs	Nassau	Silver Lake, Lofts Pond
Genesee	Tonawanda Creek, Middle, Main Stem	Nassau	Woodmere Channel
Genesee	Oak Orchard Creek, Upper, and tribs	Niagara	Hyde Park Lake
Genesee	Bowen Brook and tribs	Niagara	Lake Ontario Shoreline, Western
Genesee	Bigelow Creek and tribs	Niagara	Bergholtz Creek and tribs
Genesee	Black Creek, Middle, and minor tribs	Oneida	Ballou, Nail Creeks
Genesee	LeRoy Reservoir	Onondaga	Ley Creek and tribs
Greene	Schoharie Reservoir	Onondaga	Onondaga Creek, Lower and tribs

APPENDIX E

List of 303(d) segments impaired by pollutants related to construction activity, cont'd.

COUNTY	WATERBODY	COUNTY	WATERBODY
Onondaga	Onondaga Creek, Middle and tribs	Suffolk	Great South Bay, West
Onondaga	Onondaga Creek, Upp, and minor tribs	Suffolk	Mill and Seven Ponds
Onondaga	Harbor Brook, Lower, and tribs	Suffolk	Moriches Bay, East
Onondaga	Ninemile Creek, Lower, and tribs	Suffolk	Moriches Bay, West
Onondaga	Minor tribs to Onondaga Lake	Suffolk	Quantuck Bay
Onondaga	Onondaga Creek, Lower, and tribs	Suffolk	Shinnecock Bay (and Inlet)
Ontario	Honeoye Lake	Sullivan	Bodine, Montgomery Lakes
Ontario	Hemlock Lake Outlet and minor tribs	Sullivan	Davies Lake
Ontario	Great Brook and minor tribs	Sullivan	Pleasure Lake
Orange	Monhagen Brook and tribs	Sullivan	Swan Lake
Orange	Orange Lake	Tompkins	Cayuga Lake, Southern End
Orleans	Lake Ontario Shoreline, Western	Tompkins	Owasco Inlet, Upper, and tribs
Oswego	Pleasant Lake	Ulster	Ashokan Reservoir
Oswego	Lake Neatahwanta	Ulster	Esopus Creek, Upper, and minor tribs
Putnam	Oscawana Lake		
Putnam	Palmer Lake	Ulster	Esopus Creek, Lower, Main Stem
Putnam	Lake Carmel	Ulster	Esopus Creek, Middle, and minor tribs
Queens	Jamaica Bay, Eastern, and tribs (Queens)		
Queens	Bergen Basin	Warren	Lake George
Queens	Shellbank Basin	Warren	Tribs to L.George, Village of L George
Rensselaer	Nassau Lake		
Rensselaer	Snyders Lake	Warren	Huddle/Finkle Brooks and tribs
Richmond	Grasmere, Arbutus and Wolfes Lakes	Warren	Indian Brook and tribs
Rockland	Congers Lake, Swartout Lake	Warren	Hague Brook and tribs
Rockland	Rockland Lake	Washington	Tribs to L.George, East Shr Lk George
Saratoga	Ballston Lake		
Saratoga	Round Lake	Washington	Cossayuna Lake
Saratoga	Dwaas Kill and tribs	Washington	Wood Cr/Champlain Canal, minor tribs
Saratoga	Tribs to Lake Lonely		
Saratoga	Lake Lonely	Wayne	Port Bay
Schenectady	Collins Lake	Wayne	Marbletown Creek and tribs
Schenectady	Duane Lake	Westchester	Lake Katonah
Schenectady	Mariaville Lake	Westchester	Lake Mohegan
Schoharie	Engleville Pond	Westchester	Lake Shenorock
Schoharie	Summit Lake	Westchester	Reservoir No.1 (Lake Isle)
Schuyler	Cayuta Lake	Westchester	Saw Mill River, Middle, and tribs
St. Lawrence	Fish Creek and minor tribs	Westchester	Silver Lake
St. Lawrence	Black Lake Outlet/Black Lake	Westchester	Teatown Lake
Steuben	Lake Salubria	Westchester	Truesdale Lake
Steuben	Smith Pond	Westchester	Wallace Pond
Suffolk	Millers Pond	Westchester	Peach Lake
Suffolk	Mattituck (Marratooka) Pond	Westchester	Mamaroneck River, Lower
Suffolk	Tidal tribs to West Moriches Bay	Westchester	Mamaroneck River, Upp, and tribs
Suffolk	Canaan Lake	Westchester	Sheldrake River and tribs
Suffolk	Lake Ronkonkoma	Westchester	Blind Brook, Lower
Suffolk	Beaverdam Creek and tribs	Westchester	Blind Brook, Upper, and tribs
Suffolk	Big/Little Fresh Ponds	Westchester	Lake Lincolndale
Suffolk	Fresh Pond	Westchester	Lake Meahaugh
Suffolk	Great South Bay, East	Wyoming	Java Lake
Suffolk	Great South Bay, Middle	Wyoming	Silver Lake

Note: The list above identifies those waters from the final New York State "2014 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy", dated January 2015, that are impaired by silt, sediment or nutrients.

XIII. APPENDIX F

LIST OF NYS DEC REGIONAL OFFICES

Region	COVERING THE FOLLOWING COUNTIES:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) PERMIT ADMINISTRATORS	DIVISION OF WATER (DOW) WATER (SPDES) PROGRAM
1	NASSAU AND SUFFOLK	50 CIRCLE ROAD STONY BROOK, NY 11790 TEL. (631) 444-0365	50 CIRCLE ROAD STONY BROOK, NY 11790-3409 TEL. (631) 444-0405
2	BRONX, KINGS, NEW YORK, QUEENS AND RICHMOND	1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4997	1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4933
3	DUTCHESS, ORANGE, PUTNAM, ROCKLAND, SULLIVAN, ULSTER AND WESTCHESTER	21 SOUTH PUTT CORNERS ROAD NEW PALTZ, NY 12561-1696 TEL. (845) 256-3059	100 HILLSIDE AVENUE, SUITE 1W WHITE PLAINS, NY 10603 TEL. (914) 428 - 2505
4	ALBANY, COLUMBIA, DELAWARE, GREENE, MONTGOMERY, OTSEGO, RENSSELAER, SCHENECTADY AND SCHOHARIE	1150 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2069	1130 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2045
5	CLINTON, ESSEX, FRANKLIN, FULTON, HAMILTON, SARATOGA, WARREN AND WASHINGTON	1115 STATE ROUTE 86, PO BOX 296 RAY BROOK, NY 12977-0296 TEL. (518) 897-1234	232 GOLF COURSE ROAD WARRENSBURG, NY 12885-1172 TEL. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROAD AVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVE. BUFFALO, NY 14203-2999 TEL. (716) 851-7070

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person:	4a.Telephone:

4b. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. □ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP. ***Date final stabilization completed** (month/year): _____

9b. □ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. □ Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? □ yes □ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? □ yes □ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

_____

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? □ yes □ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

□ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

□ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

□ For post-construction stormwater management practices that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record.

□ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? □ yes □ no

(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:

(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:

Title/Position:

Signature:	Date:

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued	
VII. Qualified Inspector Certification - Final Stabilization:	
I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:
VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):	
I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:
IX. Owner or Operator Certification	
I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2015)

APPENDIX 3

FINAL DESIGN DRAWINGS
(ATTACHED)

APPENDIX 4

CONSTRUCTION SITE LOG BOOK

WEEKLY INSPECTION FORM

APPENDIX H

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM FOR CONSTRUCTION ACTIVITIES

CONSTRUCTION SITE LOG BOOK

Table of Contents

I. Pre-Construction Meeting Documents
   a. Preamble to Site Assessment and Inspections
   b. Operator's Certification
   c. Qualified Professional's Credentials & Certification
   d. Pre-Construction Site Assessment Checklist

II. Construction Duration Inspections
   a. Directions
   b. Modification to the SWPPP

III. Monthly Summary Reports

IV. Monitoring, Reporting, and Three-Month Status Reports
   a. Operator's Compliance Response Form

Properly completing forms such as those contained in Appendix H meet the inspection requirement of NYS-DEC SPDES GP for Construction Activities. Completed forms shall be kept on site at all times and made available to authorities upon request.

I. PRE-CONSTRUCTION MEETING DOCUMENTS
Project Name _____
Permit No. _____ **Date of Authorization** _____
Name of Operator _____
Prime Contractor _____

a. Preamble to Site Assessment and Inspections
The Following Information To Be Read By All Person's Involved in The Construction of Stormwater Related Activities:

The Operator agrees to have a qualified professional[1] conduct an assessment of the site prior to the commencement of construction[2] and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements.

When construction starts, site inspections shall be conducted by the qualified professional at least every 7 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater (Construction Duration Inspections). The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request. The Operator shall post at the site, in a publicly accessible location, a summary of the site inspection activities on a monthly basis (Monthly Summary Report).

The operator shall also prepare a written summary of compliance with this general permit at a minimum frequency of every three months (Operator's Compliance Response Form), while coverage exists. The summary should address the status of achieving each component of the SWPPP.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified professional perform a final site inspection. The qualified professional shall certify that the site has undergone final stabilization[3] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 "Qualified Professional means a person knowledgeable in the principles and practice of erosion and sediment controls, such as a Certified Professional in Erosion and Sediment Control (CPESC), soil scientist, licensed engineer or someone working under the direction and supervision of a licensed engineer (person must have experience in the principles and practices of erosion and sediment control).
2 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.
3 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

b. Operators Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. Further, I hereby certify that the SWPPP meets all Federal, State, and local erosion and sediment control requirements. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law.

Name (please print): _____

Title _____ **Date:** _____

Address: _____

Phone: _____ **Email:** _____

Signature: _____

c. Qualified Professional's Credentials & Certification

"I hereby certify that I meet the criteria set forth in the General Permit to conduct site inspections for this project and that the appropriate erosion and sediment controls described in the SWPPP and as described in the following Pre-construction Site Assessment Checklist have been adequately installed or implemented, ensuring the overall preparedness of this site for the commencement of construction."

Name (please print): _____

Title _____ **Date:**_____

Address: _____

Phone: _____ **Email:** _____

Signature: _____

d. Pre-construction Site Assessment Checklist
(NOTE: Provide comments below as necessary)

1. Notice of Intent, SWPPP, and Contractors Certification:

Yes No NA

[ ] [ ] [ ] Has a Notice of Intent been filed with the NYS Department of Conservation?
[ ] [ ] [ ] Is the SWPPP on-site? Where?_____
[ ] [ ] [ ] Is the Plan current? What is the latest revision date?_____
[ ] [ ] [ ] Is a copy of the NOI (with brief description) onsite? Where?_____
[ ] [ ] [ ] Have all contractors involved with stormwater related activities signed a contractor's certification?

2. Resource Protection

Yes No NA

[ ] [ ] [ ] Are construction limits clearly flagged or fenced?
[ ] [ ] [ ] Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.
[ ] [ ] [ ] Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

Yes No NA

[ ] [ ] [ ] Clean stormwater runoff has been diverted from areas to be disturbed.
[ ] [ ] [ ] Bodies of water located either on site or in the vicinity of the site have been identified and protected.
[ ] [ ] [ ] Appropriate practices to protect on-site or downstream surface water are installed.
[ ] [ ] [ ] Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Entrance

Yes No NA

[ ] [ ] [ ] A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.
[ ] [ ] [ ] Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.
[ ] [ ] [ ] Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Perimeter Sediment Controls

Yes No NA

[ ] [ ] [ ] Silt fence material and installation comply with the standard drawing and specifications.
[ ] [ ] [ ] Silt fences are installed at appropriate spacing intervals
[ ] [ ] [ ] Sediment/detention basin was installed as first land disturbing activity.
[ ] [ ] [ ] Sediment traps and barriers are installed.

6. Pollution Prevention for Waste and Hazardous Materials

Yes No NA

[ ] [ ] [ ] The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.
[ ] [ ] [ ] The plan is contained in the SWPPP on page _____
[ ] [ ] [ ] Appropriate materials to control spills are onsite. Where? _____

II. CONSTRUCTION DURATION INSPECTIONS

a. Directions:
Inspection Forms will be filled out during the entire construction phase of the project.
Required Elements:

(1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;

(2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;

(3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;

(4) Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);

(5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and

(6) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

SITE PLAN/SKETCH

_____	_____
Inspector (print name)	**Date of Inspection**
_____	_____
Qualified Professional (print name)	**Qualified Professional Signature**

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

Maintaining Water Quality

Yes No NA
[ ] [ ] [ ] Is there an increase in turbidity causing a substantial visible contrast to natural conditions?
[ ] [ ] [ ] Is there residue from oil and floating substances, visible oil film, or globules or grease?
[ ] [ ] [ ] All disturbance is within the limits of the approved plans.
[ ] [ ] [ ] Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site Conditions
Yes No NA
[ ] [ ] [ ] Is construction site litter and debris appropriately managed?
[ ] [ ] [ ] Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
[ ] [ ] [ ] Is construction impacting the adjacent property?
[ ] [ ] [ ] Is dust adequately controlled?

2. Temporary Stream Crossing
Yes No NA
[ ] [ ] [ ] Maximum diameter pipes necessary to span creek without dredging are installed.
[ ] [ ] [ ] Installed non-woven geotextile fabric beneath approaches.
[ ] [ ] [ ] Is fill composed of aggregate (no earth or soil)?
[ ] [ ] [ ] Rock on approaches is clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.

Runoff Control Practices

1. Excavation Dewatering
Yes No NA
[ ] [ ] [ ] Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
[ ] [ ] [ ] Clean water from upstream pool is being pumped to the downstream pool.
[ ] [ ] [ ] Sediment laden water from work area is being discharged to a silt-trapping device.
[ ] [ ] [ ] Constructed upstream berm with one-foot minimum freeboard.

2. Level Spreader
Yes No NA
[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
[ ] [ ] [ ] Flow sheets out of level spreader without erosion on downstream edge.

3. Interceptor Dikes and Swales
Yes No NA
[ ] [ ] [ ] Installed per plan with minimum side slopes 2H:1V or flatter.
[ ] [ ] [ ] Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
[ ] [ ] [ ] Sediment-laden runoff directed to sediment trapping structure

Runoff Control Practices (continued)

4. Stone Check Dam

Yes No NA

[ ] [ ] [ ] Is channel stable? (flow is not eroding soil underneath or around the structure).
[ ] [ ] [ ] Check is in good condition (rocks in place and no permanent pools behind the structure).
[ ] [ ] [ ] Has accumulated sediment been removed?.

5. Rock Outlet Protection

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles

Yes No NA

[ ] [ ] [ ] Stockpiles are stabilized with vegetation and/or mulch.
[ ] [ ] [ ] Sediment control is installed at the toe of the slope.

2. Revegetation

Yes No NA

[ ] [ ] [ ] Temporary seedings and mulch have been applied to idle areas.
[ ] [ ] [ ] 4 inches minimum of topsoil has been applied under permanent seedings

Sediment Control Practices

1. Stabilized Construction Entrance

Yes No NA

[ ] [ ] [ ] Stone is clean enough to effectively remove mud from vehicles.
[ ] [ ] [ ] Installed per standards and specifications?
[ ] [ ] [ ] Does all traffic use the stabilized entrance to enter and leave site?
[ ] [ ] [ ] Is adequate drainage provided to prevent ponding at entrance?

2. Silt Fence

Yes No NA

[ ] [ ] [ ] Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
[ ] [ ] [ ] Joints constructed by wrapping the two ends together for continuous support.
[ ] [ ] [ ] Fabric buried 6 inches minimum.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
Sediment accumulation is ___% of design capacity.

Sediment Control Practices (continued)

3. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated practices)

Yes No NA

[ ] [ ] [ ] Installed concrete blocks lengthwise so open ends face outward, not upward.
[ ] [ ] [ ] Placed wire screen between No. 3 crushed stone and concrete blocks.
[ ] [ ] [ ] Drainage area is 1acre or less.
[ ] [ ] [ ] Excavated area is 900 cubic feet.
[ ] [ ] [ ] Excavated side slopes should be 2:1.
[ ] [ ] [ ] 2" x 4" frame is constructed and structurally sound.
[ ] [ ] [ ] Posts 3-foot maximum spacing between posts.
[ ] [ ] [ ] Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.

Sediment accumulation ___% of design capacity.

4. Temporary Sediment Trap

Yes No NA

[ ] [ ] [ ] Outlet structure is constructed per the approved plan or drawing.
[ ] [ ] [ ] Geotextile fabric has been placed beneath rock fill.

Sediment accumulation is ___% of design capacity.

5. Temporary Sediment Basin

Yes No NA

[ ] [ ] [ ] Basin and outlet structure constructed per the approved plan.
[ ] [ ] [ ] Basin side slopes are stabilized with seed/mulch.
[ ] [ ] [ ] Drainage structure flushed and basin surface restored upon removal of sediment basin facility.

Sediment accumulation is ___% of design capacity.

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design.
Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

.
List name of electronic photographic documentation:
.

CONSTRUCTION DURATION INSPECTIONS

b. Modifications to the SWPPP (To be completed as described below)

The Operator shall amend the SWPPP whenever:

1. There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or
2. The SWPPP proves to be ineffective in:
   a. Eliminating or significantly minimizing pollutants from sources identified in the SWPPP and as required by this permit; or
   b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity; and
3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP.

Modification & Reason:

APPENDIX 5

N.Y.S. STANDARDS AND SPECIFICATIONS

FOR EROSION AND SEDIMENT CONTROL

STANDARD AND SPECIFICATIONS FOR STABILIZED CONSTRUCTION ENTRANCE

Definition

A stabilized pad of aggregate underlain with geotextile located at any point where traffic will be entering or leaving a construction site to or from a public right-of-way, street, alley, sidewalk, or parking area.

Purpose

The purpose of stabilized construction entrance is to reduce or eliminate the tracking of sediment onto public rights-of-way or streets.

Conditions Where Practice Applies

A stabilized construction entrance shall be used at all points of construction ingress and egress.

Design Criteria

See Figure 5A.35 on page 5A.76 for details.

Aggregate Size: Use a matrix of 1-4 inch stone, or reclaimed or recycled concrete equivalent.

Thickness: Not less than six (6) inches.

Width: 12-foot minimum but not less than the full width of points where ingress or egress occurs. 24-foot minimum if there is only one access to the site.

Length: As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum would apply).

Geotextile: To be placed over the entire area to be covered with aggregate. Filter cloth will not be required on a single-family residence lot. Piping of surface water under entrance shall be provided as required. If piping is impossible, a mountable berm with 5:1 slopes will be permitted.

Criteria for Geotextile

The geotextile shall be woven or nonwoven fabric consisting only of continuous chain polymeric filaments or yarns of polyester. The fabric shall be inert to commonly encountered chemicals, hydro-carbons, mildew, rot resistant, and conform to the fabric properties as shown:

Fabric Properties[3]	Light Duty[1] Roads Grade Subgrade	Heavy Duty[2] Haul Roads Rough Graded	Test Method
Grab Tensile Strength (lbs)	200	220	ASTM D1682
Elongation at Failure (%)	50	60	ASTM D1682
Mullen Brust Strength (lbs)	190	430	ASTM D3786
Puncture Strength (lbs)	40	125	ASTM D751 modified
Equivalent Opening Size	40-80	40-80	US Std Sieve CW-02215
Aggregate Depth	6	10	--

[1]Light Duty Road: Area sites that have been graded to subgrade and where most travel would be single axle vehicles and an occasional multi-axle truck. Acceptable materials are Trevira Spunbond 1115, Mirafi 100X, Typar 3401, or equivalent.

[2]Heavy Duty Road: Area sites with only rough grading, and where most travel would be multi-axle vehicles. Acceptable materials are Trevira Spunbond 1135, Mirafi 600X, or equivalent.

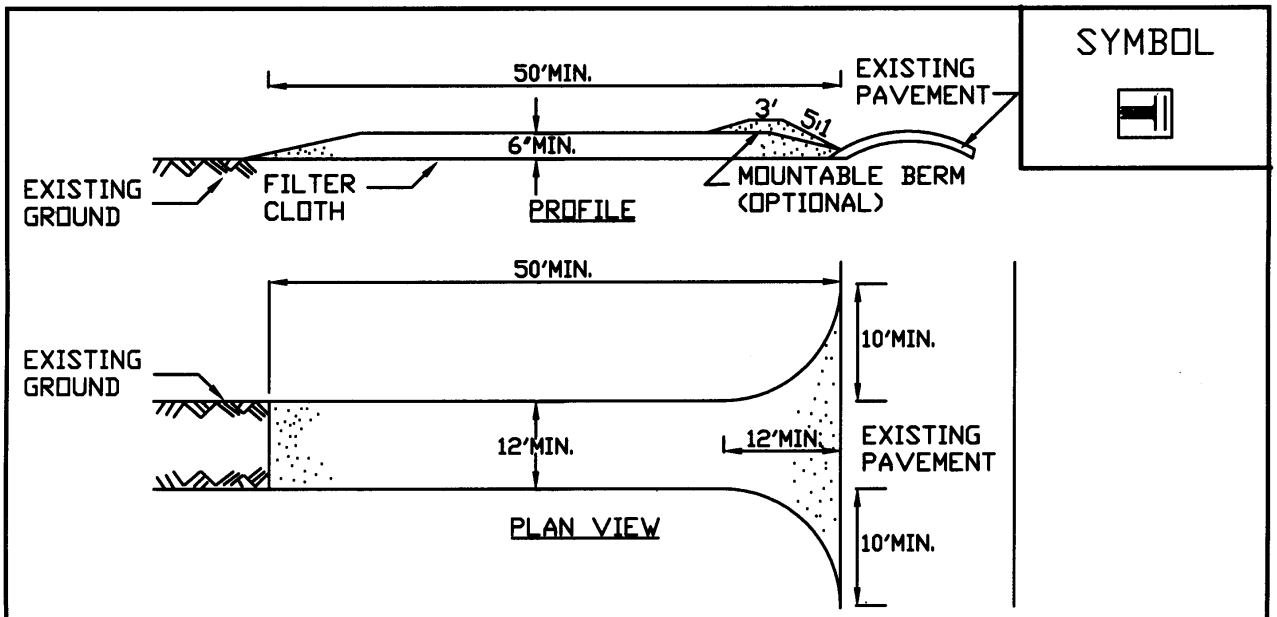
[3]Fabrics not meeting these specifications may be used only when design procedure and supporting documentation are supplied to determine aggregate depth and fabric strength.

Maintenance

The entrance shall be maintained in a condition which will prevent tracking of sediment onto public rights-of-way or streets. This may require periodic top dressing with additional aggregate. All sediment spilled, dropped, or washed onto public rights-of-way must be removed immediately.

When necessary, wheels must be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment-trapping device. All sediment shall be prevented from entering storm drains, ditches, or watercourses.

Figure 5A.35
Stabilized Construction Entrance



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	STABILIZED CONSTRUCTION ENTRANCE

STANDARD AND SPECIFICATIONS FOR SILT FENCE

Definition

A temporary barrier of geotextile fabric installed on the contours across a slope used to intercept sediment laden runoff from small drainage areas of disturbed soil.

Purpose

The purpose of a silt fence is to reduce runoff velocity and effect deposition of transported sediment load. Limits imposed by ultraviolet stability of the fabric will dictate the maximum period the silt fence may be used (approximately one year).

Conditions Where Practice Applies

A silt fence may be used subject to the following conditions:

1. Maximum allowable slope lengths contributing runoff to a silt fence placed on a slope are:

Slope Steepness	Maximum Length (ft.)
2:1	25
3:1	50
4:1	75
5:1 or flatter	100

2. Maximum drainage area for overland flow to a silt fence shall not exceed ¼ acre per 100 feet of fence, with maximum ponding depth of 1.5 feet behind the fence; and

3. Erosion would occur in the form of sheet erosion; and

4. There is no concentration of water flowing to the barrier.

Design Criteria

Design computations are not required for installations of 1 month or less. Longer installation periods should be designed for expected runoff. All silt fences shall be placed as close to the areas as possible, but at least 10 feet from the toe of a slope to allow for maintenance and roll down. The area beyond the fence must be undisturbed or stabilized.

Sensitive areas to be protected by silt fence may need to be reinforced by using heavy wire fencing for added support to prevent collapse.

Where ends of filter cloth come together, they shall be overlapped, folded and stapled to prevent sediment bypass. A detail of the silt fence shall be shown on the plan. See Figure 5A.8 on page 5A.21 for details.

Criteria for Silt Fence Materials

1. Silt Fence Fabric: The fabric shall meet the following specifications unless otherwise approved by the appropriate erosion and sediment control plan approval authority. Such approval shall not constitute statewide acceptance.

Fabric Properties	Minimum Acceptable Value	Test Method
Grab Tensile Strength (lbs)	90	ASTM D1682
Elongation at Failure (%)	50	ASTM D1682

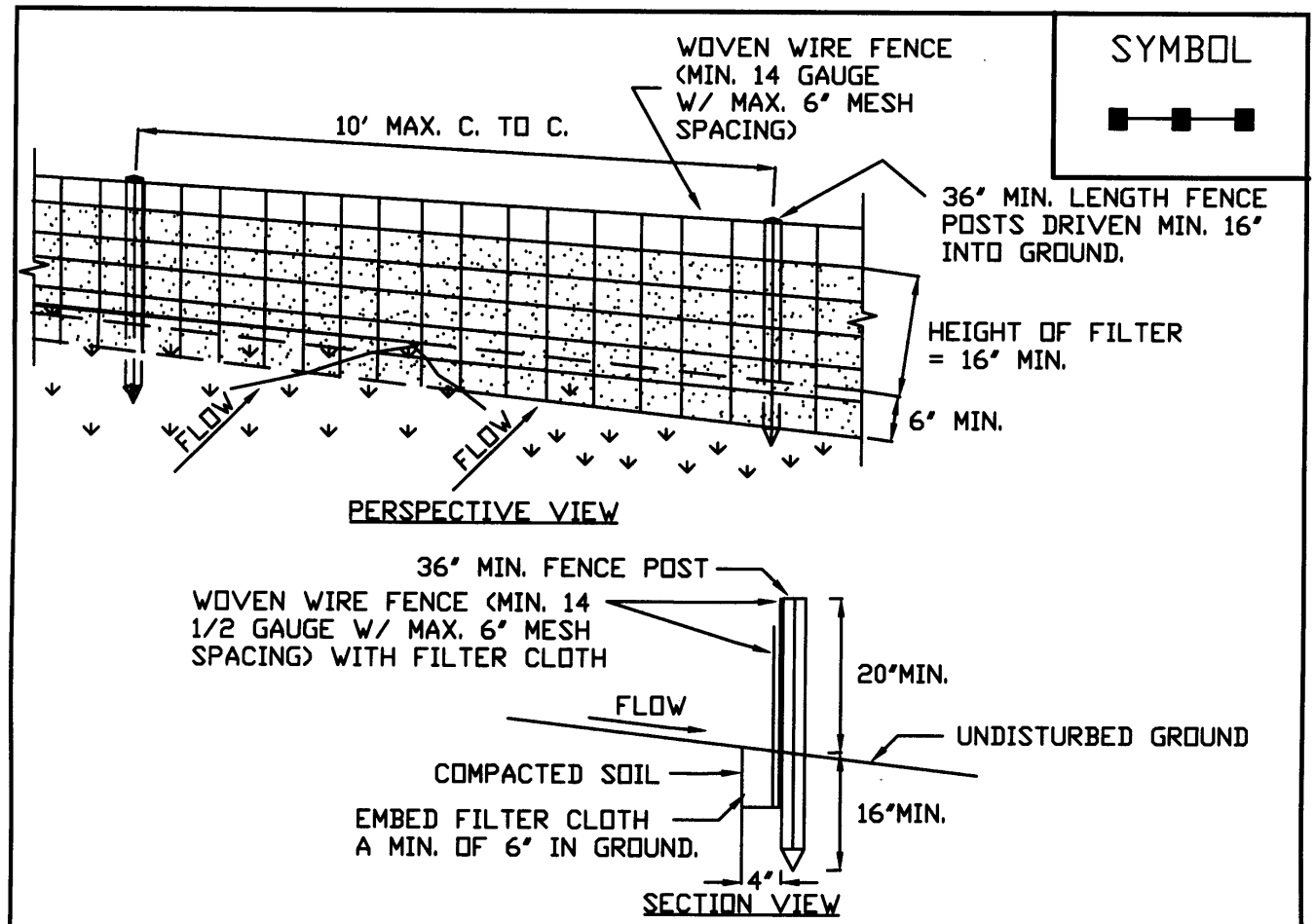
Mullen Burst Strength (PSI)	190	ASTM D3786
Puncture Strength (lbs)	40	ASTM D751 (modified)
Slurry Flow Rate (gal/min/sf)	0.3	
Equivalent Opening Size	40-80	US Std Sieve CW-02215
Ultraviolet Radiation Stability (%)	90	ASTM G-26

2. Fence Posts (for fabricated units): The length shall be a minimum of 36 inches long. Wood posts will be of sound quality hardwood with a minimum cross sectional area of 3.0 square inches. Steel posts will be standard T and U section weighing not less than 1.00 pound per linear foot.

3. Wire Fence (for fabricated units): Wire fencing shall be a minimum 14 gage with a maximum 6 in. mesh opening, or as approved.

4. Prefabricated Units: Envirofence, Geofab, or approved equal, may be used in lieu of the above method providing the unit is installed per details shown in Figure 5A.8.

Figure 5A.8
Silt Fence



CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	SILT FENCE

STANDARD AND SPECIFICATIONS FOR CHECK DAM

Definition

Small barriers or dams constructed of stone, bagged sand or gravel, or other durable material across a drainage way.

Purpose

To reduce erosion in a drainage channel by restricting the velocity of flow in the channel.

Condition Where Practice Applies

This practice is used as a temporary or emergency measure to limit erosion by reducing velocities in small open channels that are degrading or subject to erosion and where permanent stabilization is impractical due to short period of usefulness and time constraints of construction.

Design Criteria

Drainage Area: Maximum drainage area above the check dam shall not exceed two (2) acres.

Height: Not greater than 2 feet. Center shall be maintained 9 inches lower than abutments at natural ground elevation.

Side Slopes: Shall be 2:1 or flatter.

Spacing: The check dams shall be spaced as necessary in the channel so that the crest of the downstream dam is at the elevation of the toe of the upstream dam. This spacing is equal to the height of the check dam divided by the channel slope.

Therefore:

$$S = h/s$$

Where:

S = spacing interval (ft.)
h = height of check dam (ft.)
s = channel slope (ft./ft.)

Example:

For a channel with a 4% slope and 2 ft. high stone check dams, they are spaced as follows:

$$S = \frac{2 \text{ ft.}}{.04 \text{ ft/ft.}} = 50 \text{ ft.}$$

Stone size: Use a well graded stone matrix 2 to 9 inches in size (NYS – DOT Light Stone Fill meets these requirements).

The overflow of the check dams will be stabilized to resist erosion that might be caused by the check dam. See Figure 5A.9 on page 5A.24 for details.

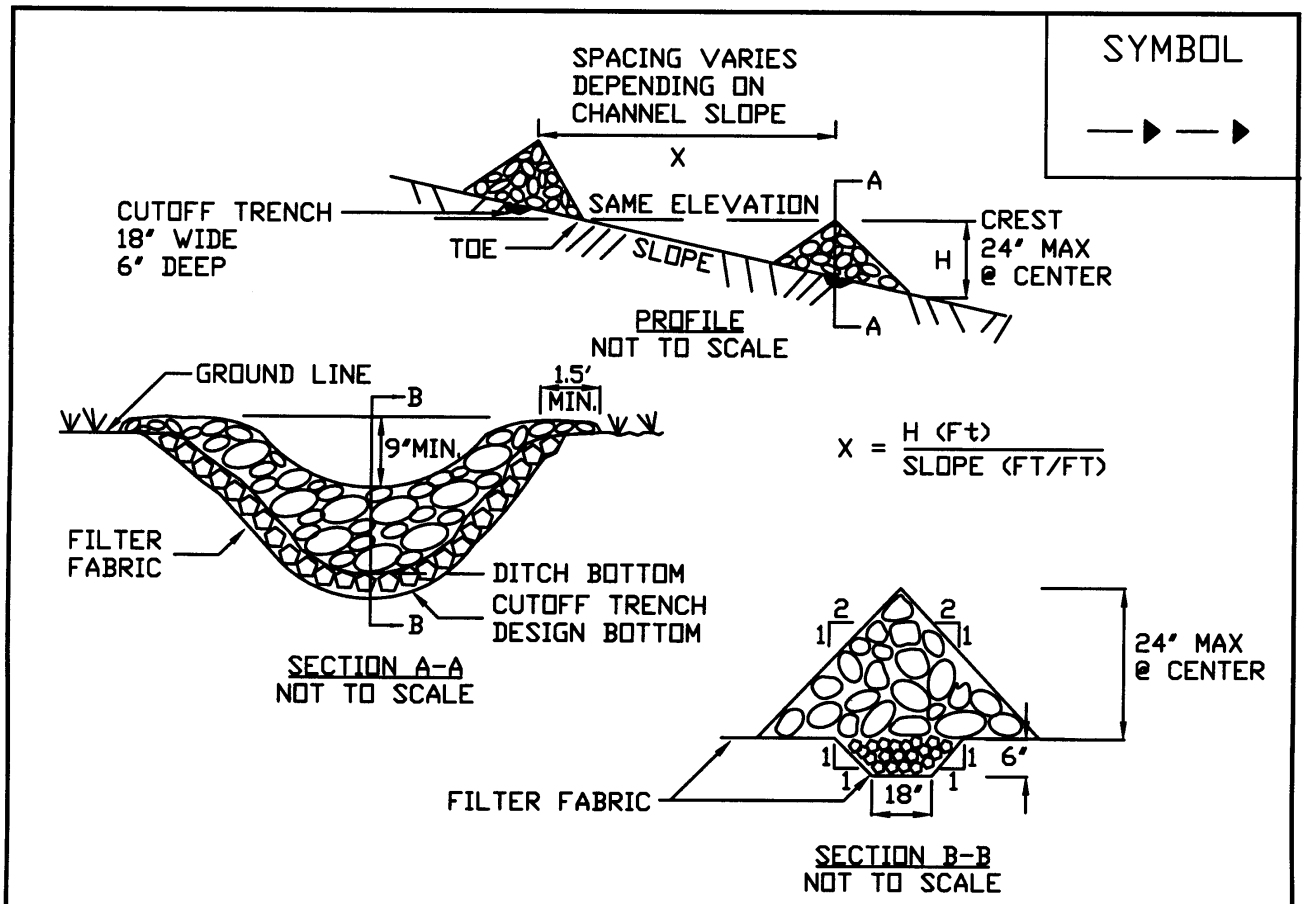
Check dams should be anchored in the channel by a cutoff trench 1.5 ft. wide and 0.5 ft. deep and lined with filter fabric to prevent soil migration.

Maintenance

The check dams should be inspected after each runoff event. Correct all damage immediately. If significant erosion has occurred between structures, a liner of stone or other suitable material should be installed in that portion of the channel.

Remove sediment accumulated behind the dam as needed to allow channel to drain through the stone check dam and prevent large flows from carrying sediment over the dam. Replace stones as needed to maintain the design cross section of the structures.

Figure 5A.9
Check Dam



CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.
2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

MAXIMUM DRAINAGE AREA 2 ACRES.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	CHECK DAM

STANDARD AND SPECIFICATIONS FOR TEMPORARY SWALE

Definition

A temporary excavated drainage way.

Purpose

The purpose of a temporary swale is to prevent runoff from entering disturbed areas by intercepting and diverting it to a stabilized outlet or to intercept sediment laden water and divert it to a sediment trapping device.

Conditions Where Practice Applies

Temporary swales are constructed:

1. to divert flows from entering a disturbed area.

2. intermittently across disturbed areas to shorten overland flow distances.

3. to direct sediment laden water along the base of slopes to a trapping device.

4. to transport offsite flows across disturbed areas such as rights-of-way.

Swales collecting runoff from disturbed areas shall remain in place until the disturbed areas are permanently stabilized.

Design Criteria

See Figure 5A.2 on page 5A.5 for details.

	Swale A	Swale B
Drainage Area	<5 Ac	5-10 Ac
Bottom Width of Flow Channel	4 ft	6 ft
Depth of Flow Channel	1 ft	1 ft
Side Slopes	2:1 or flatter	2:1 or flatter
Grade	0.5% Min. 20% Max.	0.5% Min. 20% Max.

For drainage areas larger than 10 acres, refer to the Standard and Specification for Waterways on page 5B.11.

Stabilization

Stabilization of the swale shall be completed within 7 days of installation in accordance with the appropriate standard and specifications for vegetative stabilization or stabilization with mulch as determined by the time of year. The flow channel shall be stabilized as per the following criteria:

Type of Treatment	Channel Grade[1]	Flow Channel A (<5 Ac.)	Flow Channel B (5-10 Ac)
1	0.5-3.0%	Seed & Straw Mulch	Seed & Straw Mulch
2	3.1-5.0%	Seed & Straw Mulch	Seed and cover with RECP, Sod, or lined with plastic or 2 in. stone
3	5.1-8.0%	Seed and cover with RECP, Sod, or line with plastic or 2 in. stone	Line with 4-8 in. or stone or Recycled Concrete Equivalent[2] or geotextile
4	8.1-20%	Line with 4-8 in. stone or Recycled Concrete Equivalent[2] or geotextile	Site Specific Engineering Design

[1] In highly erodible soils, as defined by the local approving agency, refer to the next higher slope grade for type of stabilization.
[2] Recycled Concrete Equivalent shall be concrete broken into the required size, and shall contain no steel reinforcement.

Outlet

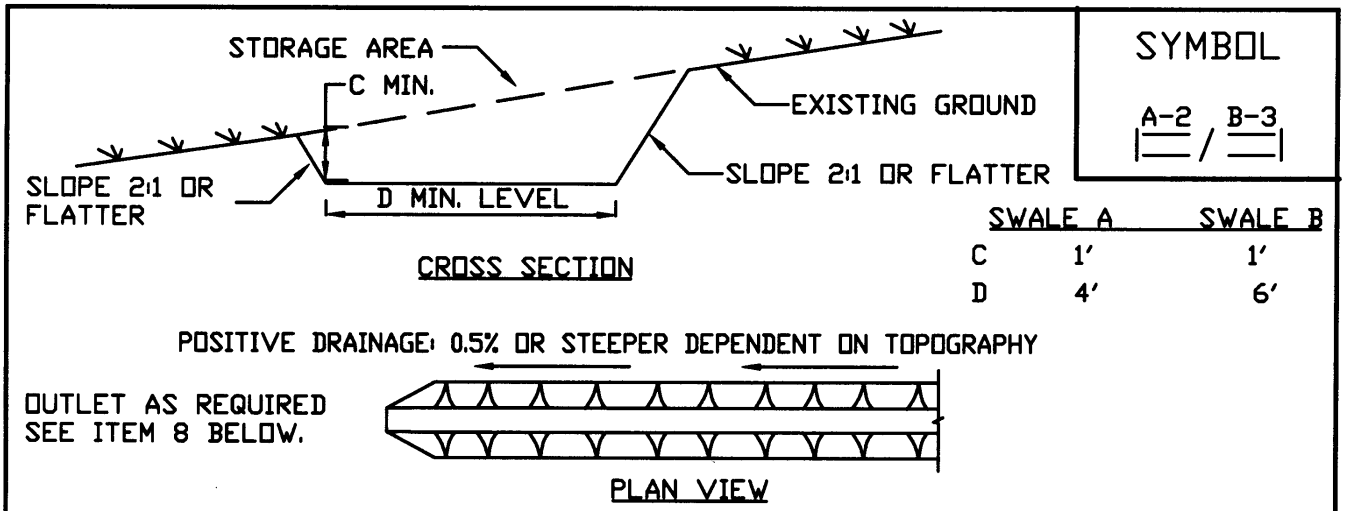
Swale shall have an outlet that functions with a minimum of erosion, and dissipates runoff velocity prior to discharge off the site.

Runoff shall be conveyed to a sediment trapping device such as a sediment trap or sediment basin until the drainage area above the swale is adequately stabilized.

The on-site location may need to be adjusted to meet field conditions in order to utilize the most suitable outlet condition.

If a swale is used to divert clean water flows from entering a disturbed area, a sediment trapping device may not be needed.

Figure 5A.2
Temporary Swale



CONSTRUCTION SPECIFICATIONS

1. ALL TEMPORARY SWALES SHALL HAVE UNINTERUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
5. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
8. STABILIZATION SHALL BE AS PER THE FLOW CHANNEL STABILIZATION CHART BELOW:

TYPE OF TREATMENT	CHANNEL GRADE	A(5 AC. OR LESS)	B(5 AC -10AC)
1	0.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED AND COVER USING RECP
3	5.1-8.0%	SEED AND COVER WITH RECP	LINED WITH 4-8" RIP-RAP OR GEOTEXTILE
4	8.1-20.%	LINED WITH 4-8" RIP-RAP OR GEOTEXTILE	ENGINEERED DESIGN

9. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

TEMPORARY SWALE

STANDARD AND SPECIFICATIONS FOR STORM DRAIN INLET PROTECTION

Definition

A temporary, somewhat permeable barrier, installed around inlets in the form of a fence, berm or excavation around an opening, trapping water and thereby reducing the sediment content of sediment laden water by settling.

Purpose

To prevent heavily sediment laden water from entering a storm drain system through inlets.

Conditions Where Practice Applies

This practice shall be used where the drainage area to an inlet is disturbed, it is not possible to temporarily divert the storm drain outfall into a trapping device, and watertight blocking of inlets is not advisable. **It is not to be used in place of sediment trapping devices.** This may be used in conjunction with storm drain diversion to help prevent siltation of pipes installed with low slope angle.

Types of Storm Drain Inlet Practices

There are four (4) specific types of storm drain inlet protection practices that vary according to their function, location, drainage area, and availability of materials:

I. Excavated Drop Inlet Protection
II. Fabric Drop Inlet Protection
III. Stone & Block Drop Inlet Protection
IV. Curb Drop Inlet Protection

Design Criteria

Drainage Area – The drainage area for storm drain inlets shall not exceed one acre. The crest elevations of these practices shall provide storage and minimize bypass flow.

Type I – Excavated Drop Inlet Protection

See details for Excavated Drop Inlet Protection in Figure 5A.11 on page 5A.29.

Limit the drainage area to the inlet device to 1 acre. Excavated side slopes shall be no steeper than 2:1. The minimum depth shall be 1 foot and the maximum depth 2 feet as measured from the crest of the inlet structure. Shape the excavated basin to fit conditions with the longest dimension oriented toward the longest inflow area to provide maximum trap efficiency. The capacity of the excavated basin should be established to contain 900 cubic feet per acre of disturbed area. Weep holes, protected by fabric and stone, should be provided for draining the temporary pool.

Inspect and clean the excavated basin after every storm. Sediment should be removed when 50 percent of the storage volume is achieved This material should be incorporated into the site in a stabilized manner.

Type II – Fabric Drop Inlet Protection

See Figure 5A.12 for details on Filter Fabric Drop Inlet Protection on page 5A.30.

Limit the drainage area to 1 acre per inlet device. Land area slope immediately surrounding this device should not exceed 1 percent. The maximum height of the fabric above the inlet crest shall not exceed 1.5 feet unless reinforced.

The top of the barrier should be maintained to allow overflow to drop into the drop inlet and not bypass the inlet to unprotected lower areas. Support stakes for fabric shall be a minimum of 3 feet long, spaced a maximum 3 feet apart. They should be driven close to the inlet so any overflow drops into the inlet and not on the unprotected soil. Improved performance and sediment storage volume can be obtained by excavating the area.

Inspect the fabric barrier after each rain event and make repairs as needed. Remove sediment from the pool area as

necessary with care not to undercut or damage the filter fabric. Upon stabilization of the drainage area, remove all materials and unstable sediment and dispose of properly. Bring the adjacent area of the drop inlet to grade, smooth and compact and stabilize in the appropriate manner to the site.

If straw bales are used in lieu of filter fabric, they should be placed tight with the cut edge adhering to the ground at least 3 inches below the elevation of the drop inlet. Two anchor stakes per bale shall be driven flush to bale surface. Straw bales will be replaced every 4 months until the area is stabilized.

Type III – Stone and Block Drop Inlet Protection

See Figure 5A.13 for details on Stone and Block Drop Inlet Protection on page 5A.31.

Limit the drainage area to 1 acre at the drop inlet. The stone barrier should have a minimum height of 1 foot and a maximum height of 2 feet. Do not use mortar. The height should be limited to prevent excess ponding and bypass flow.

Recess the first course of blocks at least 2 inches below the crest opening of the storm drain for lateral support. Subsequent courses can be supported laterally if needed by placing a 2x4 inch wood stud through the block openings perpendicular to the course. The bottom row should have a few blocks oriented so flow can drain through the block to dewater the basin area.

The stone should be placed just below the top of the blocks on slopes of 2:1 or flatter. Place hardware cloth of wire mesh with ½ inch openings over all block openings to hold stone in place.

As an optional design, the concrete blocks may be omitted and the entire structure constructed of stone, ringing the outlet ("doughnut"). The stone should be kept at a 3:1 slope toward the inlet to keep it from being washed into the inlet. A level area 1 foot wide and four inches below the crest will further prevent wash. Stone on the slope toward the inlet should be at least 3 inches in size for stability and 1 inch or smaller away from the inlet to control flow rate. The elevation of the top of the stone crest must be maintained 6 inches lower than the ground elevation down slope from the inlet to ensure that all storm flows pass over the stone into the storm drain and not past the structure. Temporary diking should be used as necessary to prevent bypass flow.

The barrier should be inspected after each rain event and repairs made where needed. Remove sediment as necessary to provide for accurate storage volume for subsequent rains. Upon stabilization of contributing drainage area, remove all materials and any unstable soil and dispose of properly.

Bring the disturbed area to proper grade, smooth, compact and stabilized in a manner appropriate to the site.

Type IV – Curb Drop Inlet Protection

See Figure 5A. 14 for details on Curb Drop Inlet Protection on page 5A.32.

The drainage area should be limited to 1 acre at the drop inlet. The wire mesh must be of sufficient strength to support the filter fabric and stone with the water fully impounded against it. Stone is to be 2 inches in size and clean. The filter fabric must be of a type approved for this purpose with an equivalent opening size (EOS) of 40-85. The protective structure will be constructed to extend beyond the inlet 2 feet in both directions. Assure that storm flow does not bypass the inlet by installing temporary dikes (such as sand bags) directing flow into the inlet. Make sure that the overflow weir is stable. Traffic safety shall be integrated with the use of this practice.

The structure should be inspected after every storm event. Any sediment should be removed and disposed of on the site. Any stone missing should be replaced. Check materials for proper anchorage and secure as necessary.

Figure 5A.11
Excavated Drop Inlet Protection

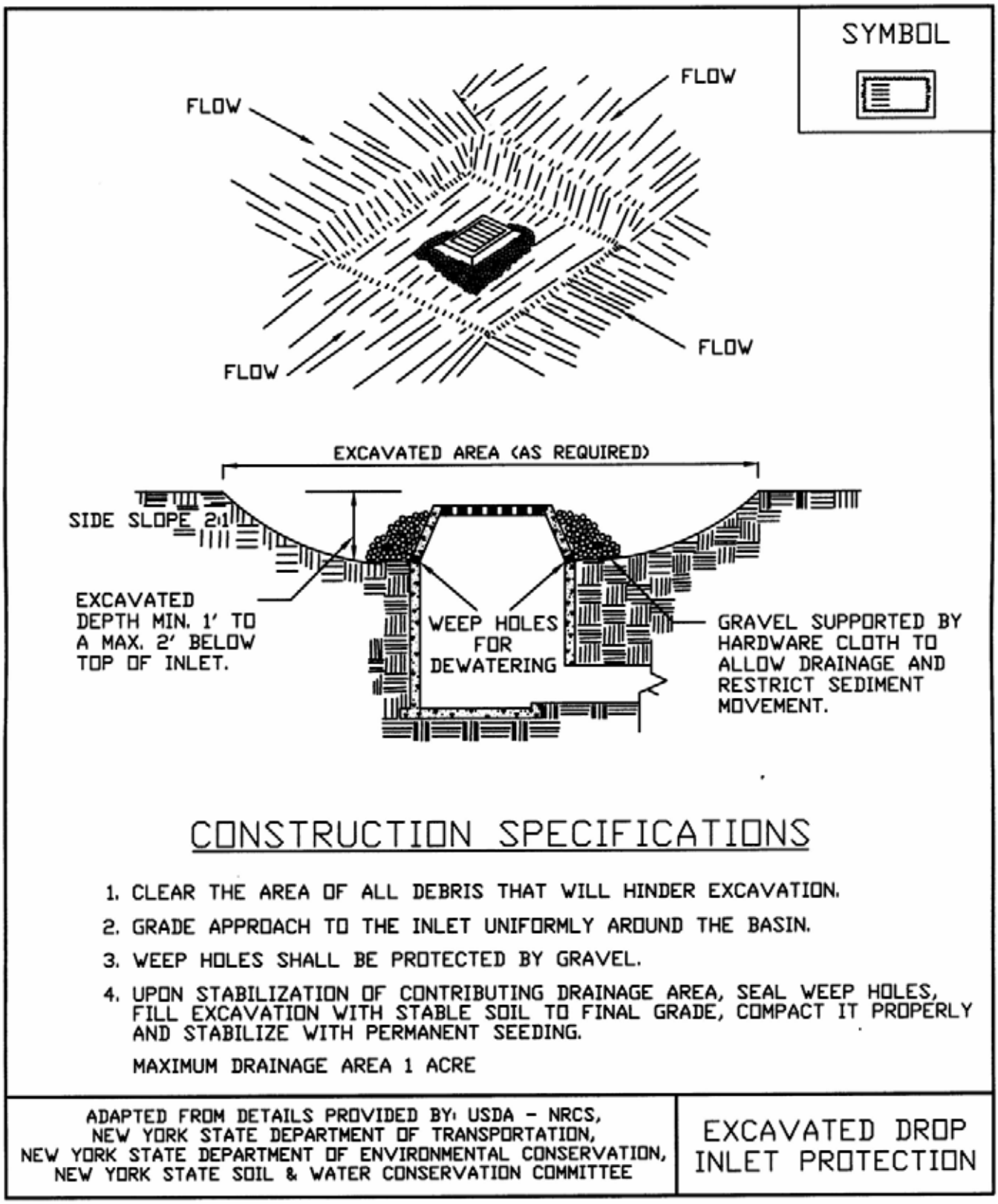
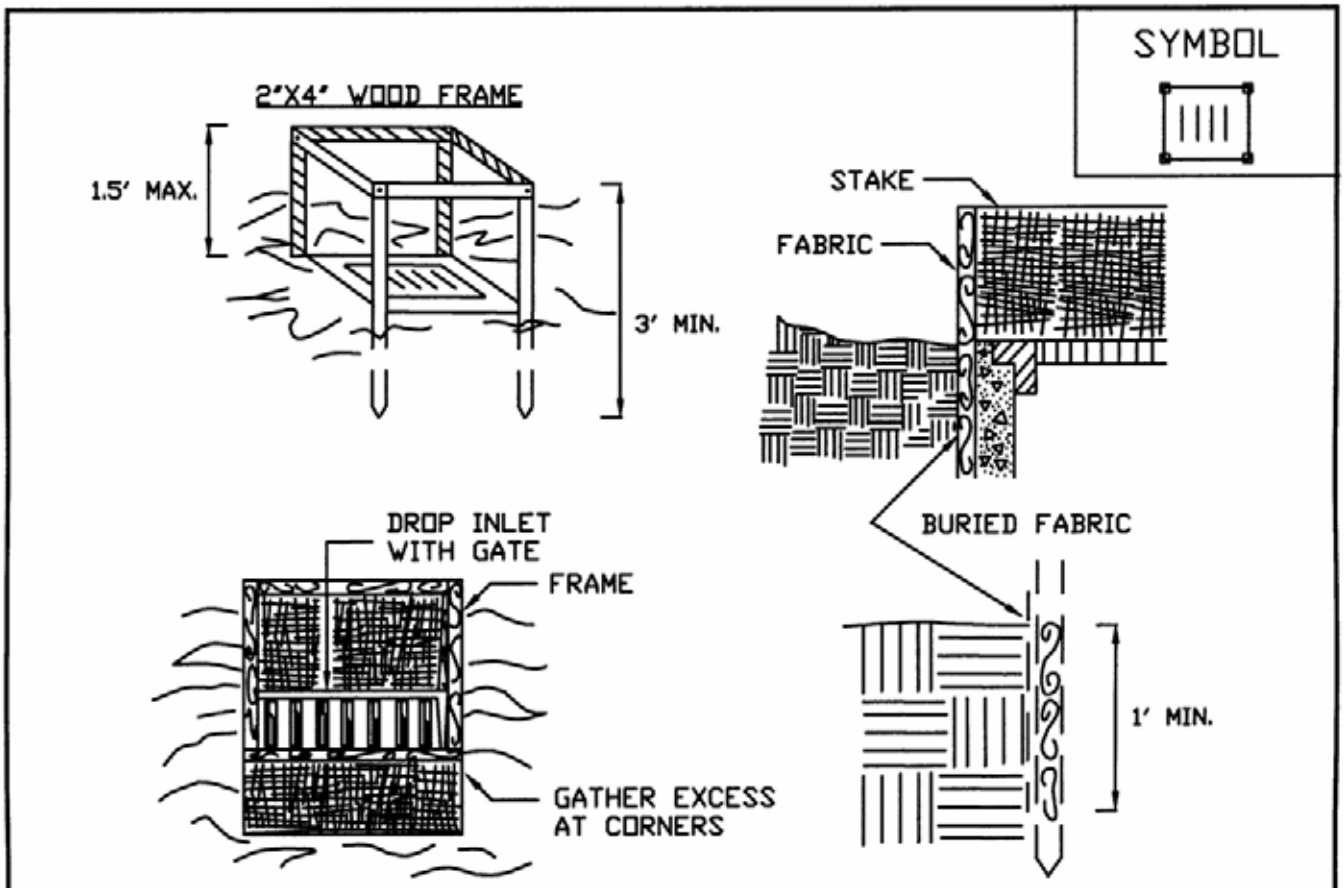


Figure 5A.12
Filter Fabric Drop Inlet Protection



CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUN DRAINAGE AREA 1 ACRE

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	FILTER FABRIC DROP INLET PROTECTION

Figure 5A.13
Stone & Block Drop Inlet Protection

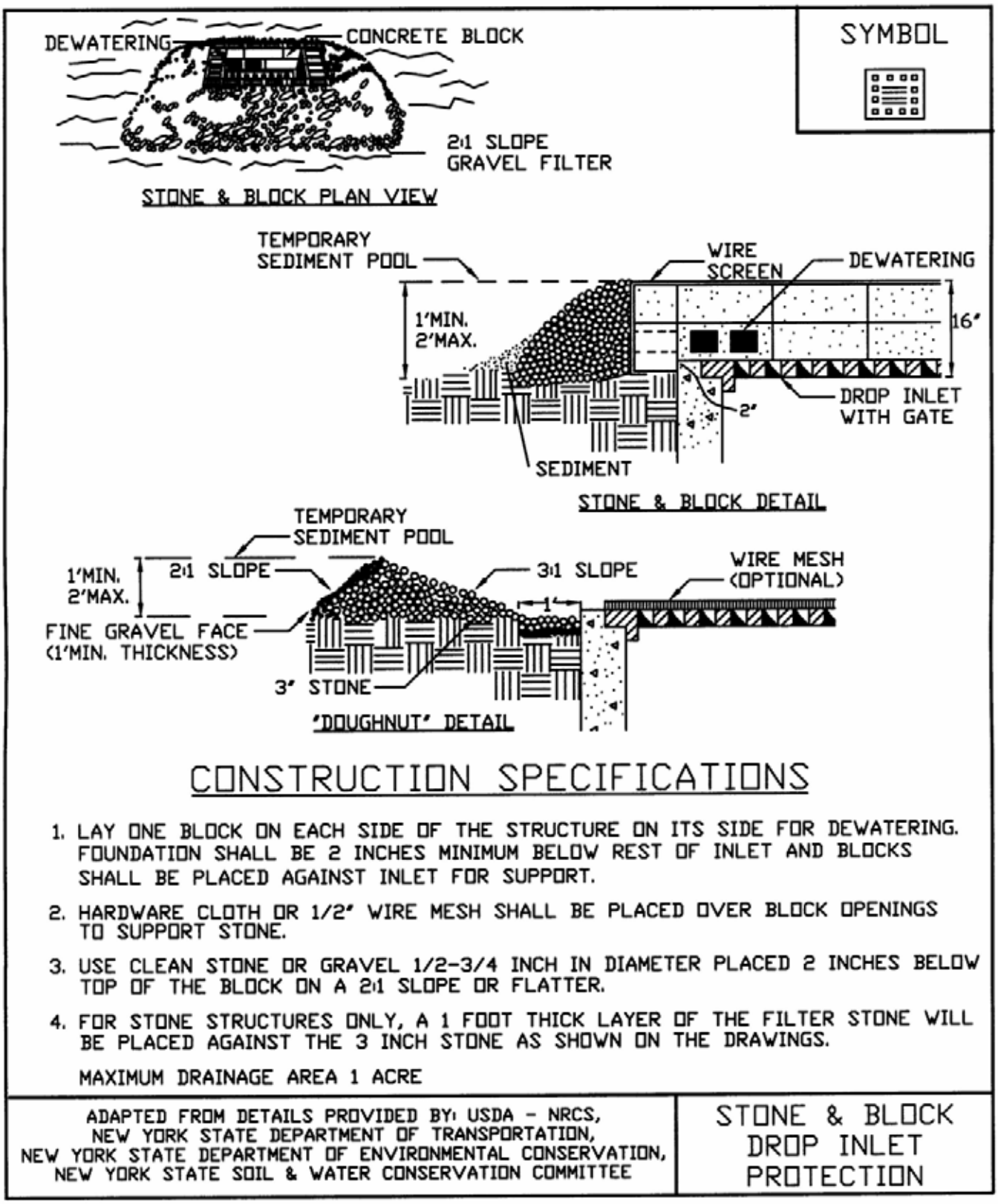
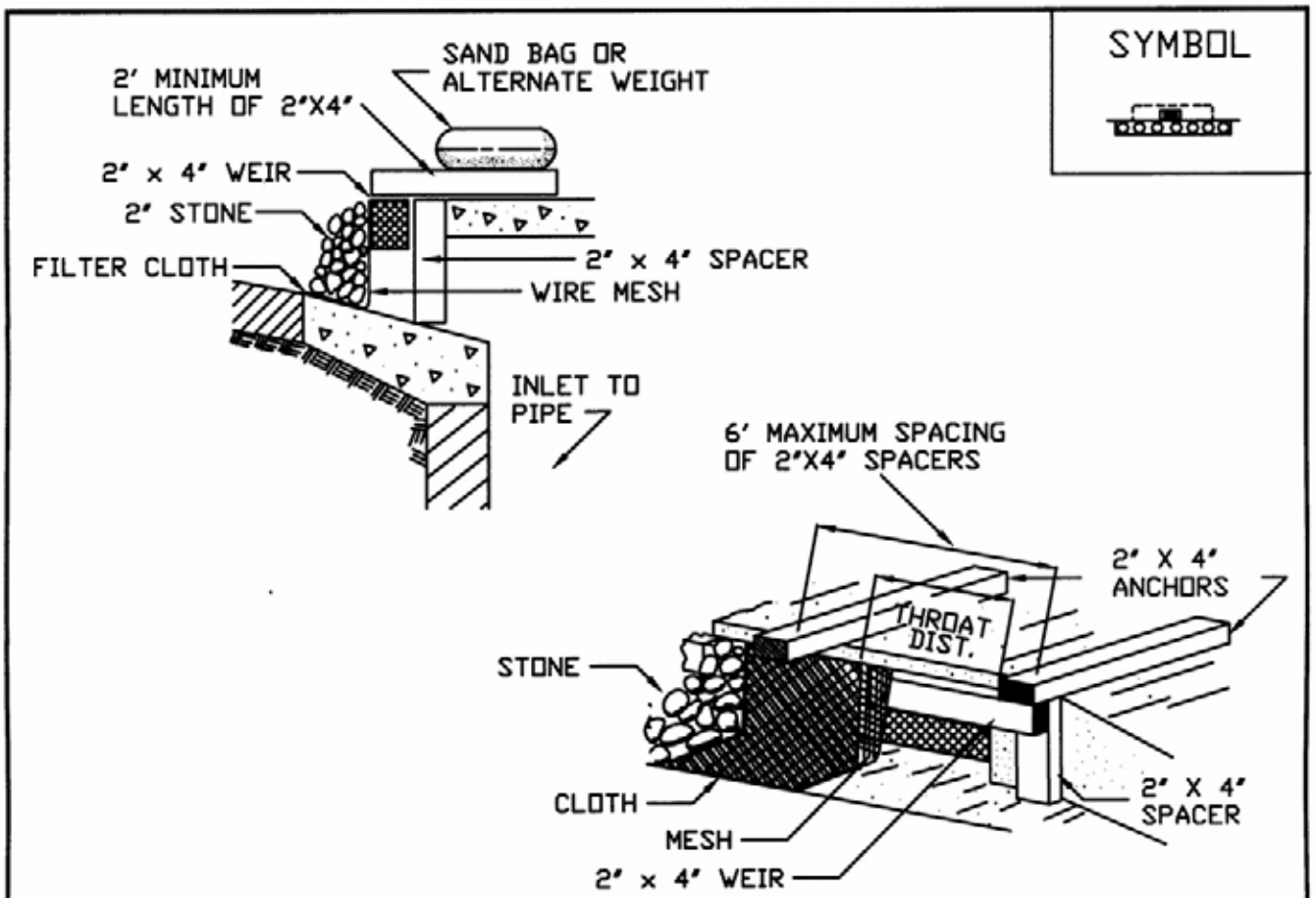


Figure 5A.14
Curb Drop Inlet Protection



CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN AOS OF 40-85.
2. WOODEN FRAME SHALL BE CONSTRUCTED OF 2" x 4" CONSTRUCTION GRADE LUMBER.
3. WIRE MESH ACROSS THROAT SHALL BE A CONTINUOUS PIECE 30 INCH MINIMUM WIDTH WITH A LENGTH 4 FEET LONGER THAN THE THROAT. IT SHALL BE SHAPED AND SECURELY NAILED TO A 2" x 4" WEIR.
4. THE WEIR SHALL BE SECURELY NAILED TO 2" x 4" SPACERS 9 INCHES LONG SPACED NO MORE THAN 6 FEET APART.
5. THE ASSEMBLY SHALL BE PLACED AGAINST THE INLET AND SECURED BY 2" x 4" ANCHORS 2 FEET LONG EXTENDING ACROSS THE TOP OF THE INLET AND HELD IN PLACE BY SANDBAGS OR ALTERNATE WEIGHTS.

MAXIMUM DRAINAGE AREA 1 ACRE

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

CURB DROP INLET PROTECTION

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Brinnier & Larios, P.C.

Design Report

With H&H Study

November 2016

Funding By:
CDBG Grant
Through N.Y. Rising

Dennis M. Larios, P.E.

Washington Park Stormwater Mitigation Project

Town of Rosendale

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FIGURES:

Figure 1 – Site Map

Figure 2 – Watershed Boundary

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Appendix A – USDA Soils Report of Drainage Area

Appendix B – Hydrologic Model Outputs and Hydraulic Calculations

Appendix C – 30% Design Drawings

I. PURPOSE AND SCOPE

The Town of Rosendale retained Brinnier and Larios, P.C. to prepare the design of a stormwater mitigation system for the Washington Park area in the Town of Rosendale, Ulster County, New York. An aerial map of Washington Park is given on Figure 1. The site is located on the west side of NYS Route 32 near Latitude 42º 50' 55" N and Longitude 74º 4' 34" W. Washington Park encompasses an area of approximately 25 acres with sixty-nine residential buildings. Located on the northeast side of Washington Park is the Fanns Plaza. The southern side of the project area borders a flood control ponding area that was constructed as part of the Rosendale Flood Control Project by the United States Army Corps of Engineers (USACE) in the 1960's.

The Washington Park area has been subjected to chronic flooding problems during large rain events.

The Town of Rosendale Town Code requires storm sewers to be designed in accordance with the standards of the Superintendent of Highways (Section 60-35). The Town of Rosendale Superintendent of Highways typically requires culverts to convey a minimum of a 25 year design storm. The New York State Department of Transportation Highway Design Manual, Chapter 8, Highway Drainage recommends that drainage structures and channels for local roads be designed to convey a 50 year design storm. Based on the criteria listed above, the Washington Park stormwater mitigation culverts and channels will be designed to convey the 50 year storm event.

This design report includes the hydrology and hydraulic study (H&H Study) for the storm sewer replacement. The design report is organized into seven sections as follows:

Section I	–	Purpose and Scope
Section II	–	Existing Conditions
Section III	–	Hydrologic and Hydraulic Study
Section IV	–	Stormwater Mitigation Design and Sizing
Section V	–	Permitting
Section VI	–	Schedule
Section VII	–	Opinion of Probable Costs
Section VIII	–	Summary and Recommendations

II. EXISTING CONDITIONS

A. Site Description

Washington Park is residential area in the Town of Rosendale with sixty-nine residences that are a combination of single family residential buildings and manufactured homes. Lot sizes are a third of an acre or smaller and are served with public water and public sanitary sewers. The Fanns Plaza is located on the northeast side of Washington Park. The Washington Park road network includes Washington Avenue, Central Avenue, Josephine Avenue, West End Avenue, and West Street and Hillside Avenue.

Washington Park is situated at the base of a hill. The land within Washington Park generally slopes from north to south with ground surface elevations that range from 75 feet to approximately 60 feet. The slope of the ground ranges from 2 percent to 5 percent.

There are no classified streams or waterbodies that cross Washington Park. There are two defined drainageways that cross through the Washington Park site. The runoff from the hill/mountain to the northeast and runoff from the Fanns Plaza are conveyed by storm sewers to the USACE ponding area located on the south side of the site (hereafter referred to as the Eastern Drainage System). The runoff from the hill/mountain to the west is conveyed via a swale at the base of the mountain to a storm sewer system that crosses under West End Avenue and Josephine Avenue to the USACE ponding area on the west side of Central Avenue (hereafter referred to as the Western Drainage System).

B. Watershed Area

The total watershed area that drains to and through Washington Park is shown on Figure 2. The total watershed area draining to Washington Park is 263.5 acres in size. The watershed area is subdivided into the three subcatchment areas labeled on Figure 1 as E1, E2 and E3 as described below.

Subcatchment E1 includes the runoff that flows along the NYS Route 32 hill and the runoff from the Fanns Plaza parking area. Subcatchment E1 extends all the way to the Breezy Hill Road-Hickory Bush Road intersection to the north. The area of Subcatchment E1 is 218.0 acres and the different types of land cover are summarized in Table 1. The NYSDOT installed a catch basin at the bottom of the NYS Route 32 hill along with culvert piping to Washington Avenue which directs the NYS Route 32 runoff into the Eastern Drainage System. The East Drainage System includes a collection of catch basins and pipes on West Street and Washington Avenue which discharge to a 36" corrugated metal pipe (CMP) that discharges to an open swale which then drains to the USACE ponding area.

Subcatcment E2 is the area which drains to Hillside Avenue and West Street. The drainage area is a combination of woods, residential area and the runoff from half of the roof of the Fanns Plaza building. The area of Subcatchment E2 is 12.3 acres and the different types of land cover are summarized in Table 1.

Subcatchment E2 drains southward on West Street and then along Washington Avenue where it combines with runoff from Subcatchment E1.

Subcatchment E3 is the area which drains to West End Avenue and the area which drains to Josephine Avenue and ultimately discharges to the USACE ponding area on the west side of Central Avenue. The area of Subcatchment E3 is 33.2 acres and the different types of land cover are summarized in Table 1. Runoff from Subcatchment E3 collects at the base of the hill/mountain in a swale which, over the years, has not been maintained or has been partial filled in and flows southward to a drainage ditch located on SBL# 62.82-1-4 (37 West End Avenue). This drainage ditch flows to a storm sewer system which crosses under West End Avenue and discharges to an open swale and then to a 30 inch diameter CMP under Josephine Avenue and discharges to the USACE ponding area. This drainage system is referred to as the Western Drainage System in this report.

Table 1. Subcatchment Area Parameters

Parameter	Subcatchment Area (acres)		
	E1	E2	E3
Total Watershed Area	218.0	12.3	33.2
Impervious Area	9.0	1.3	0.6
Woods	162.4	8.4	24.5
1/3 Acre Lots or Smaller Area	46.5	2.6	8.0

C. Soils

Information on the soil types in the watershed area was obtained from a USDA Soil Resource Report, which is included in Appendix A. The report indicates seven different soil types in this area. The Washington Park area has primarily Unadilla silt loam or Raynham silt loam soils. The Unadilla silt loam is classified as hydrologic soil group B soils which have a good infiltration rate. The remainder of the watershed areas soils are classified as hydrologic soil group C and D soils which have low infiltration rates.

D. Streams and Wetlands

There are no classified streams in the Washington Park area or the watershed area. The Rondout Creek is located to the south of Washington Park.

There are no Federal or State wetland areas located in the Washington Park area. The USACE ponding areas located on the south side of Washington Park are classified as PEM1Ah Federal wetland areas but the proposed new storm sewers do not extend into the USACE ponding area.

III. HYDROLOGIC AND HYDRAULIC STUDY

A. Methodology Used

The hydrologic and hydraulic study of the watershed areas contributing storm runoff to the Washington Park area was performed using the computer program entitled HydroCAD (version 10) computer software developed by HydroCAD Software Solutions LLC. HydroCAD utilizes the U.S.D.A. Soil Conservation Service hydrologic methodology known as the Technical Release 55 (TR-55), Urban Hydrology for Small Watersheds for determining the peak rates of stormwater runoff. The watershed was modeled as three subcatchment areas as described in Section IIB. The complete HydroCAD output including runoff hydrographs can be found in Appendix B.

B. Design Storms

As described in Section I, the stormwater mitigation system will be designed to handle a 50 year storm event. The 50 year design storm rainfall amount and distribution for Washington Park was obtained from the Cornell University Northeast Regional Climate Center (NRCC) precipitation database (http://precip.eas.cornell.edu/). This database provides site-specific design storms. For more accurate modeling of the hydraulic conditions at the site. The 24-hour rainfall depth for the design storm is shown below in Table 2.

Table 2. Design Storm Rainfall Depth

Design Storm	Rainfall Depth
50-year	7.03 inches

C. Hydrologic Analysis

The site specific parameters of each of the subcatchment areas as listed in Table 1 were input into the hydrologic model. The runoff curve numbers were selected based on the type of ground cover, hydrologic condition and hydrologic soil group. The time of concentration for runoff to travel from the most distant point of the watershed to the point of interest was determined using the USGS topographic information and is shown on Figure 1. The HydroCAD report given in Appendix B lists the input parameters assigned to each of the subcatchment areas.

The calculated 50 year design storm peak rates of runoff for each of the subcatchment areas are listed in Table 3.

Table 3. 50 Year Storm Peak Rate of Runoff

Subcatchment Area	Peak Runoff (cfs)
E1	119(1)
E2	18(1)
E3	40(1) 25(2)

Notes:
1. Instantaneous peak flow rate. This instantaneous peak flow occurs for only a few minutes duration.
2. Three hour weighted average peak flow rate.

The runoff hydrographs for each subcatchment area are given in Appendix B.

D. Hydraulic Analysis

The HydroCAD model was configured with the major drainage structures in the each subcatchment area to simulate the drainage channels and culverts. Using the HydorCAD model, the sizing of the drainage structures was adjusted as needed until the drainage structure was capable of conveying the 50 year design storm flow condition.

The capacity of a pipe flowing full was calculated using Mannings Equation as follows:

$$Q = V \times A = \frac{1.49}{n} \times R^{2/3} \times S^{1/2} \times A$$

where:
n = Manning roughness coefficient
= 0.012 for HDPE smooth interior pipe
R = hydraulic radius = cross sectional area / wetted perimeter
S = slope of the pipe
A = cross sectional area

The culvert capacity for different sized culverts at different slopes is outlined in Table 4.

Table 4. Hydraulic Capacity of Fully Flowing Culvert

Pipe Diameter	Minimum Slope	Culvert Capacity	Comments
Eastern Drainage System			
18 inch	1.67%	15 cfs	Too small for E2 50 year flow
24 inch	1.00%	25 cfs	OK for E2 50 year flow
36 inch	0.65%	58 cfs	OK for E2 50 year flow
48 inch	0.65%	126 cfs	OK for E1+E2 50 year flow
Western Drainage System			
24 inch	0.10%	8 cfs	Too small for E3 50 year flow
30 inch	0.10%	14 cfs	Requires two culvert pipes to convey E3 50 year flow three hour weighted average peak flow
36 inch	0.10%	23 cfs	Pipe diameter is too large for the flat site conditions and would not allow for adequate cover over the pipe.

IV. STORMWATER MITIGATION DESIGN AND SIZING

The culverts and drainage ditches were sized to adequately convey the discharge from the 50-year storm. The HydroCad model was used to evaluate different sized culverts including 18", 24", 36" and 48" diameter culvert pipes. The proposed drainage systems are described below.

Eastern Drainage System

The Eastern Drainage System is designed to convey the stormwater runoff from Subcatchment Areas E1 and E2. The Eastern Drainage System will include the following elements:

1. A drainage swale along Hillside Avenue;
2. Construction of a new storm sewer along West Street (from Hillside Avenue to Washington Avenue);
3. Construction of a new storm sewer on Washington Avenue (from West Street to where it crosses under Washington Avenue);
4. Construction of a new storm sewer from Washington Avenue to the USACE ponding area;
5. The USACE ponding area swale was recently cleaned by the Town of Rosendale Highway Department. As part of this project, the USACE ponding area swale will be regraded to provide a uniform alignment and cross sectional area that is consistent with the original USACE Rondout Creek Flood Control design.

Elements 1, 2 and 3 listed above will be sized to convey the peak rate of runoff from Subcatchment Area E2 (18 cfs). Based on the initial layout of the storm sewer system, the minimum slope of Elements 1, 2 and 3 is a 1.00% and therefore the pipe diameter required to convey the peak E2 flow of 18 cfs would be a 24" diameter pipe.

Element 4 listed above will be sized to convey the peak runoff of the combined flows from Subcatchment Area E1 (18 cfs) plus the Subcatchment Area E2 flow (119 cfs). Based on the initial layout of the storm sewer system, the minimum slope of Element 4 is 0.65% and therefore, the pipe diameter required to convey the peak E1+E2 flow of 122 cfs would be a 48" diameter pipe.

The layout of the proposed Eastern Drainage System is shown on Sheets 5 and 6 of the 30% drawing set given in Appendix C. The proposed Eastern Drainage System is comprised of:

- 181 linear feet (LF) of 48" diameter HDPE culvert pipe
- 46 LF of 36" diameter HDPE culvert pipe
- 745 LF of 24" diameter HDPE culvert pipe
- 46 LF of 18" diameter HDPE culvert pipe
- Nine catch basins
- One storm sewer manhole

Western Drainage System

The Western Drainage System is designed to convey the stormwater runoff from Subcatchment Area E3. The Western Drainage System includes the following elements:

1. A drainage swale along the mountainside from the intersection of Central Avenue and Hillside Avenue to SBL# 62.82-1-4 (37 West End Avenue).
2. Construction of a new storm sewer from SBL# 62.82-1-4 (37 West End Avenue) to the USACE ponding area on the south side of Josephine Avenue.

The area between West End Avenue and the USACE ponding area is essentially flat with little to no topographic relief. The design of a storm sewer system can only accommodate approximately six inches of elevation change between the inlet and outlet of the storm sewer system which will be approximately 500 feet long (slope = 0.5ft/500 ft = 0.1%).

Other design considerations for the Western Drainage System are the minimizing of the required cover over top of the pipes and preventing floatation of the pipes. The minimum required cover for HDPE pipes is typically twelve inches of soil material. Geotextile products can be utilized to provide an equivalent bearing capacity when less than twelve inches of cover is used. Installing a Mirafi RS380i geotextile with 6.5 inches of cover will provide an equal unreinforced Structural Number of 4.7 for pavement applications (see Flexible Pavement Analysis Report in Appendix B). A shallow groundwater table level and the corrugated ribs of the HDPE pipe can contribute to floatation forces on a culvert. To address this concern, the Western Drainage System will be designed with a filter fabric lined trench and one perforated 30" HDPE pipe to provide positive relief of any potential shallow groundwater levels. Shallow groundwater would drain by gravity through both a one foot thick stone layer under the pipe and the perforated pipe. A detail of the proposed culvert trench for the Western Drainage System is shown on Sheet 10 of the 30% design drawings.

The calculated runoff hydrograph from the mountainside drainage swale in Subcatchment E3 has the characteristic Type II runoff spike near hour 13.5 of the 24 hour storm. To design for the instantaneous peak runoff rate of 40 cfs, a storm sewer system with three (3) 30 inch diameter HDPE pipes at 0.1% slope would be required. Installation of three (3) 30 inch diameter HDPE culvert pipes is not practical for this area when consideration is given to the observed temporary ponding conditions (a matter of a few hours) that result with the existing single 18" diameter and single 30" diameter storm sewers. The three hour weighted peak flow rate (between hours 12.5 and 15.5 of the 24 hour storm) from the mountainside drainage swale in Subcatchment E3 was calculated to be 25 cfs. For purposes of designing the stormwater mitigation for the Western Drainage System, the culvert system will be sized to convey a minimum of the three hour weighted peak flow rate of 25 cfs. The three hour weighted peak flow rate of 25 cfs can be handled with two (2) 30" diameter HDPE culvert pipes which have a combined fully flowing pipe capacity of 28 cfs.

The layout of the proposed Western Drainage System is shown on Sheet 8 of the 30% drawing set given in Appendix C. The proposed Western Drainage System is comprised of:

- 1,002 LF of 30" diameter HDPE culvert pipe (dual culvert 501 LF)
- Five catch basins

The location of the proposed mountainside drainage swale is shown on Sheets 11 and 12 of the 30% drawing set given in Appendix C. The proposed mountainside drainage swale crosses through nine private properties. Temporary construction easements and permanent drainage maintenance easements will have to be obtained as described in Section V.

V. PERMITTING

The storm sewer replacement project will disturb more than one acre of land and therefore, the construction activity will require coverage under NYSDEC Permit GP-0-15-002.

The East and West Drainage Systems collect and convey runoff from unclassified, intermittent streams. Therefore no NYSDEC stream disturbance permits are required.

The discharge point of the East and West Drainage Systems will be to existing drainageways that flow into the USACE ponding area. There will be no construction activity performed within the USACE ponding area. The plans should be sent to USACE to confirm that there are no jurisdictional requirements from USACE.

There are no Federal or NYSDEC Freshwater Wetland areas in the Washington Park project area. Therefore no wetland permitting is required.

The portion of the proposed work that is being done in Town roads is for the Town of Rosendale and approval of the plans by the Town is equivalent to obtaining a Town road work permit.

The proposed work will encroach on several private properties. Permanent easements for long term operation and maintenance of the drainage systems will have to be obtained. Temporary construction easements will have to be obtained for any work that will extend beyond the boundary of the permanent easement. Listed below are the properties where permanent and temporary construction easements will be required:

Table 5. Easements Required

SBL#	Location	Property Owner Name
Eastern Drainage System		
62.82-3-5	1149 Route 32	Aero Star Petroleum, Inc
62.82-3-4	9 Washington Avenue	Wayne Quick
62.82-3-10	12 Josephine Avenue	Charles & Diane Brodhead
Western Drainage System – from West End to Josephine Avenue		
62.82-1-4	37 West End Avenue	Lamont VanWezemaal
62.82-1-12.110	From West End Avenue to Josephine Avenue	Washington Estate Development Corp.
62.82-1-12.400	32 Josephine Avenue	Charles & Diane Brodhead
62.82-1-13	25 Josephine Avenue	Laura Hendrix

Western Drainage System – Mountain Swale		
62.82-1-4	37 West End Avenue	Lamont VanWezemaal
62.82-1-12.110	From West End Avenue to Josephine Avenue	Washington Estate Development Corp.
62.82-1-3		
62.82-1-2	45 West End Avenue	Joe Walsh
62.74-1-13	47 West End Avenue	Russell Howard
62.74-1-8	47 West End Avenue	Russell Howard
62.74-1-7	67 Central Avenue	Kenneth Layton
62.74-1-6	73 Central Avenue	Joseph Gilbert
62.74-1-5	75 Central Avenue	William Maddock

Construction of the mountainside drainage swale along Central Avenue and West End Avenue may require the removal of some trees. The tree removal areas should be surveyed for the presence of Indiana Bat habitat. If it is determined that Indiana Bats habitat is present at the site, tree clearing activities must be performed between October 31 and March 31 and is restricted outside of this time period.

The Governor's Office of Storm Recovery (GOSR) will complete an environmental review of the project area including determining the presence of any threatened or endangered animals, archeological sites and critical environmental areas.

VI. SCHEDULE

The estimated duration for construction of the proposed stormwater mitigations systems is as follows:

- Obtaining all necessary temporary construction easements and permanent drainage maintenance easements – 6 months

- Tree clearing and selective demolition activities – 1 month. If NYSDEC determines that the project site is habitat for Indiana Bats, then tree removal must be performed between October 31 and March 31.

- Culvert installation construction – approximately 3 to 4 months

The overall construction activity should take from 4 to 5 months to complete. The proposed Washington Park Stormwater Mitigation systems can be constructed anytime during the normal construction period of May through December.

VII. OPINION OF PROBABLE COST

An opinion of probable costs for construction of the Washington Park Stormwater Mitigation systems is given in Table 6. The opinion of probable cost is based on the Town contracting out the work at prevailing wage rates. The opinion of probable cost is $642,000.00.

Table 6

Opinion of Probable Construction Costs @ 30% Design

Washington Park Stormwater Mitigation Project

Town of Rosendale

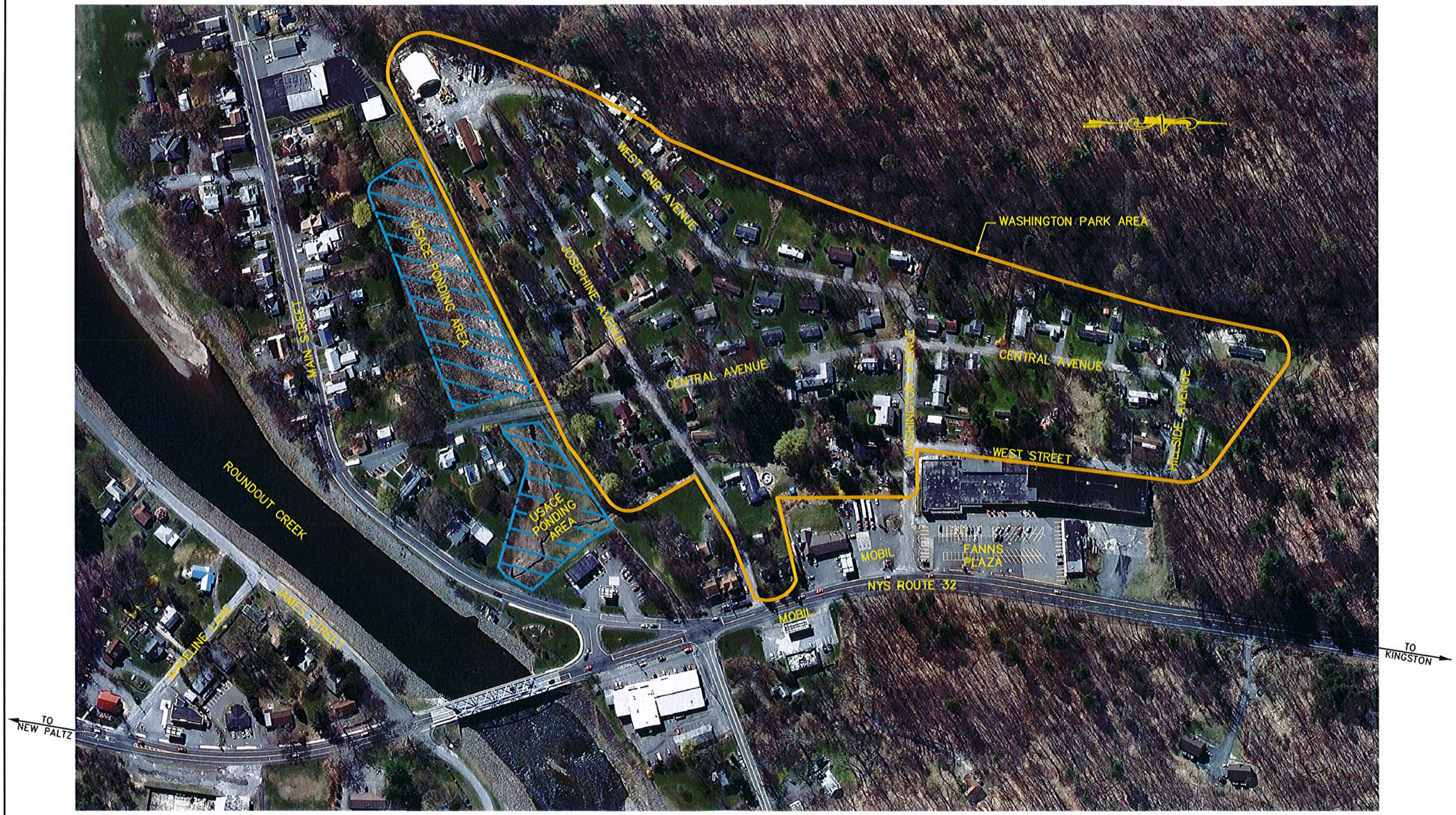
November 2016

Item No.	Description	Unit	Quantity	Unit Cost	Estimate
1	Mobilization	L.S.	1	$5,000	$5,000
2	Maintenance and Protection of Traffic	Per Month	5	$1,500	$7,500
3	Site Prepartion	L.S.	1	$10,000	$10,000
4	Install & Maintain Erosion and Sediment Control Measures	Per Month	5	$3,000	$15,000
				Subtotal - General Items =	$37,500
5	**Eastern Drainage System**				
5.1	Selective Demolition	L.S.	1	$10,000	$10,000
5.2	Install Hill Side Avenue Swale	LF	150	$30	$4,500
5.3	18" diameter HDPE driveway culverts	LF	46	$65	$2,990
5.4	Flared end section with bar rack	Each	2	$500	$1,000
5.5	24" diameter HDPE storm sewer pipe	LF	745	$80	$59,600
5.6	36" diameter HDPE storm sewer pipe	LF	46	$100	$4,600
5.7	48" diameter HDPE storm sewer pipe	LF	183	$120	$21,960
5.8	Catch Basins (30"x48" grate, precast concrete)	Each	9	$4,000	$36,000
5.9	Storm manholes (6' square precast concrete)	Each	1	$8,300	$8,300
5.10	Controlled backfill around storm sewer pipes	CY	600	$45	$27,000
5.11	Reshape swale to the USACE Ponding Area	LF	500	$50	$25,000
5.12	Riprap Apron	Tons	40	$50	$2,000
5.13	Road subbase - 8' wide top of trench	Tons	400	$45	$18,000
5.14	Asphalt Paving (3" Binder + 2" Top) - 8' wide top of trench	Tons	200	$110	$22,000
5.15	1.5" asphalt overlay on West St. and Washington Ave.	Tons	165	$110	$18,150
5.16	Site Restoration	L.S.	1	$5,000	$5,000
				Subtotal - East Drainage System + 1/3 General Items =	$278,600.00
6	**Western Drainage System - West End Avenue to Josephine Avenue**				
6.1	Selective Demolition	L.S.	1	$5,000	$7,000
6.2	Install Swale at 37 West End Avenue	LF	120	$30	$3,600
6.3	30" diameter HDPE perforated storm sewer pipe	LF	501	$85	$42,585
6.4	Second 30" diameter HDPE storm sewer pipe	LF	501	$50	$25,050
6.5	Flared end section with bar rack	Each	4	$500	$2,000
6.6	Catch Basins (30"x48" grate, precast concrete)	Each	5	$10,000	$50,000
6.7	Controlled backfill around storm sewer pipes	CY	300	$45	$13,500
6.8	Mirafi 140N Geotextile Fabric to Wrap Trench	SY	1830	$4.00	$7,320
6.9	Mirafi RS380i Geotextile over Top of Pipe	SY	730	$6.00	$4,380
6.10	Reshape swale to the USACE Ponding Area	L.S.	1	$2,000	$2,000
6.11	Riprap Apron	Tons	40	$50	$2,000
6.12	Road subbase - 20' wide trench	Tons	30	$45	$1,350
6.13	Asphalt Paving (3" Binder + 2" Top)	Tons	30	$110	$3,300
6.14	Site Restoration	L.S.	1	$5,000	$5,000
				Subtotal - West End/Josephine Ave Drainage System + 1/3 General Items =	$181,585.00
7	**Western Drainage System - Mountain Swale**				
7.1	Relocate/Replace Sheds and Fences	Allowance	1	$30,000	$30,000
7.2	Tree Clearing and Grubbing	Acres	0.5	$20,000	$10,000
7.3	Install Mountain Swale	LF	700	$50	$35,000
7.4	Landscaping	Allowance	1	$6,000	$6,000
7.5	Site Restoration	L.S.	1	$5,000	$5,000
				Subtotal - Mountain Swale + 1/3 General Items =	$98,500.00
8	Construction Contingency	%	15%	$558,685	$83,800
9	**Opinion of Probable Construction Cost @ 30% Design**				**$642,000**

VIII. SUMMARY AND RECOMMENDATIONS

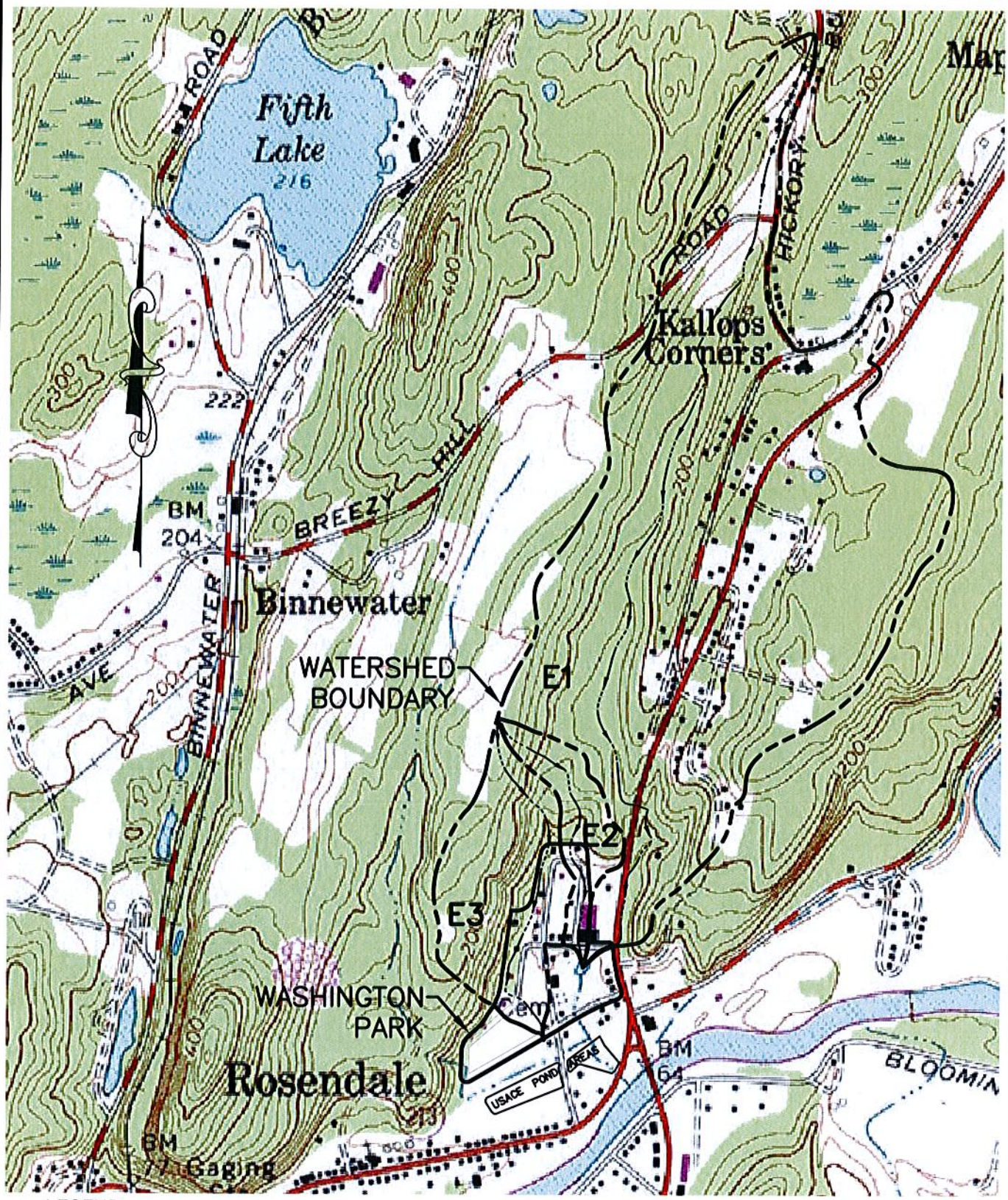
The Town of Rosendale is making drainage improvements as part of the Washington Park Stormwater Mitigation Project to alleviate the chronic flooding problems. The hydrologic and hydraulic study (H&H Study) evaluated the site conditions and determined the stormwater runoff rates. The hydrologic calculations were performed using the HydroCAD computer software. The peak rates of runoff from a 50 year design storm was determined for each subcatchment area and used to properly size the culverts and drainage channels.

The total watershed area contributing runoff to Washington Park is 263.5 acres in size. Washington Park has two primary drainageways which for purposes of this report are called the Eastern Drainage System and the Western Drainage System. The Eastern Drainage System has been designed to convey the runoff from Subcatchment Area E1 (218 acres including the NYS Route 32 runoff) and Subcatchment Area E2 (12.3 acres including West Street). The Western Drainage System has been designed to convey the runoff from Subcatchment Area E3 (33.2 acres including runoff from West End Avenue and Josephine Avenue). The layout of both of these drainage systems is shown on the 30% design drawings given in Appendix C. The opinion of probable construction cost is $642,000.00.



OVERALL SITE PLAN
N.T.S.

FIGURE 1
SITE MAP
WASHINGTON PARK



LEGEND

WATERSHED BOUNDARY

TIME OF CONCENTRATION

E2 SUBCATCHMENT NUMBER

SOURCE:
USGS 7.5 MINUTE QUADRANGLE, ROSENDALE

BRINNIER & LARIOS, P.C. ENGINEERS & LAND SURVEYORS 67 MAIDEN LANE KINGSTON, N.Y.	WATERSHED BOUNDARY WASHINGTON PARK STORMWATER MITIGATION TOWN OF ROSENDALE ULSTER COUNTY, N. Y.	SCALE 1"=1000'	DATE NOV. 2016 DWG RJS CHK JEM	FIGURE NO. 2

APPENDIX A

USDA SOILS REPORT

United States Department of Agriculture

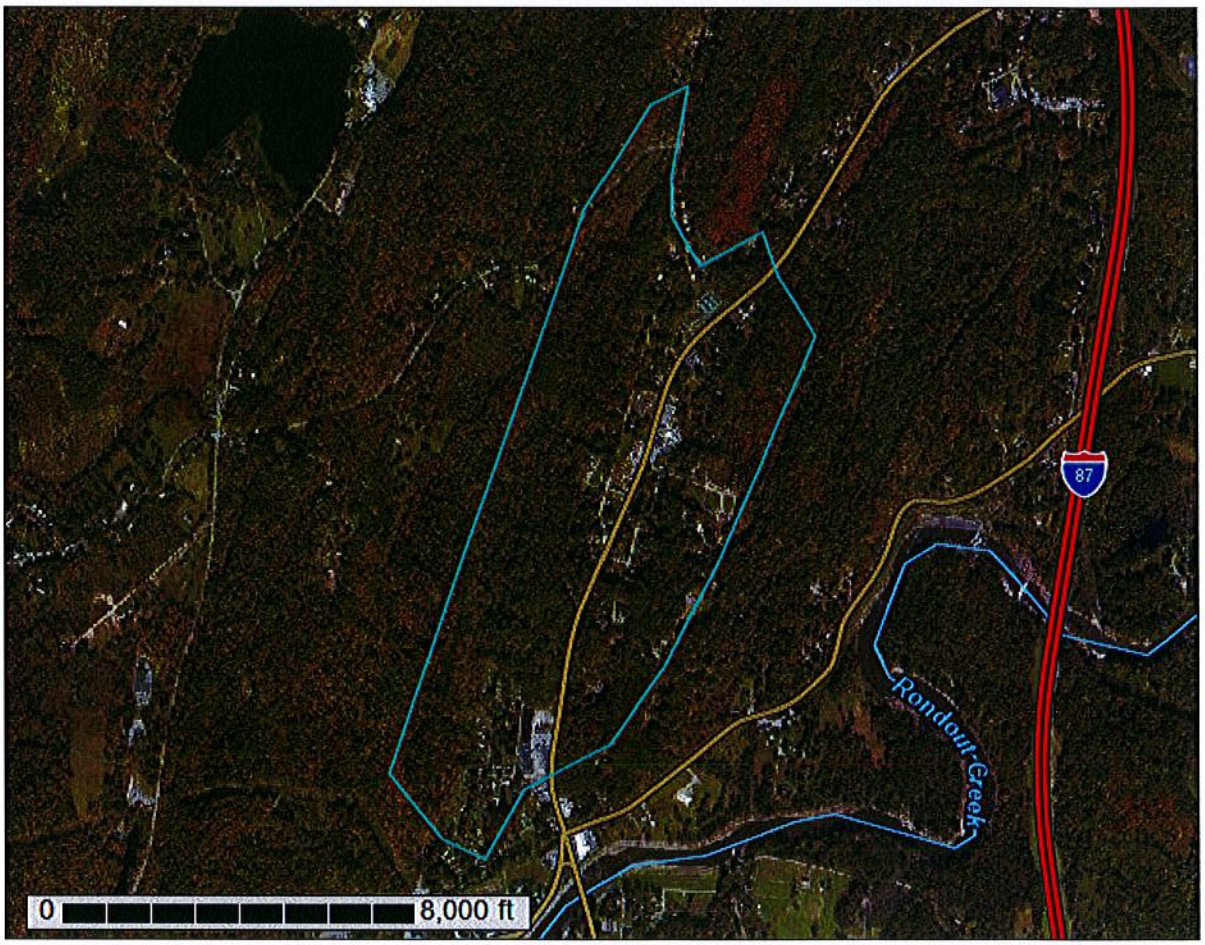
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Ulster County, New York

Washington Park Stormwater Mitigation



October 18, 2016

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

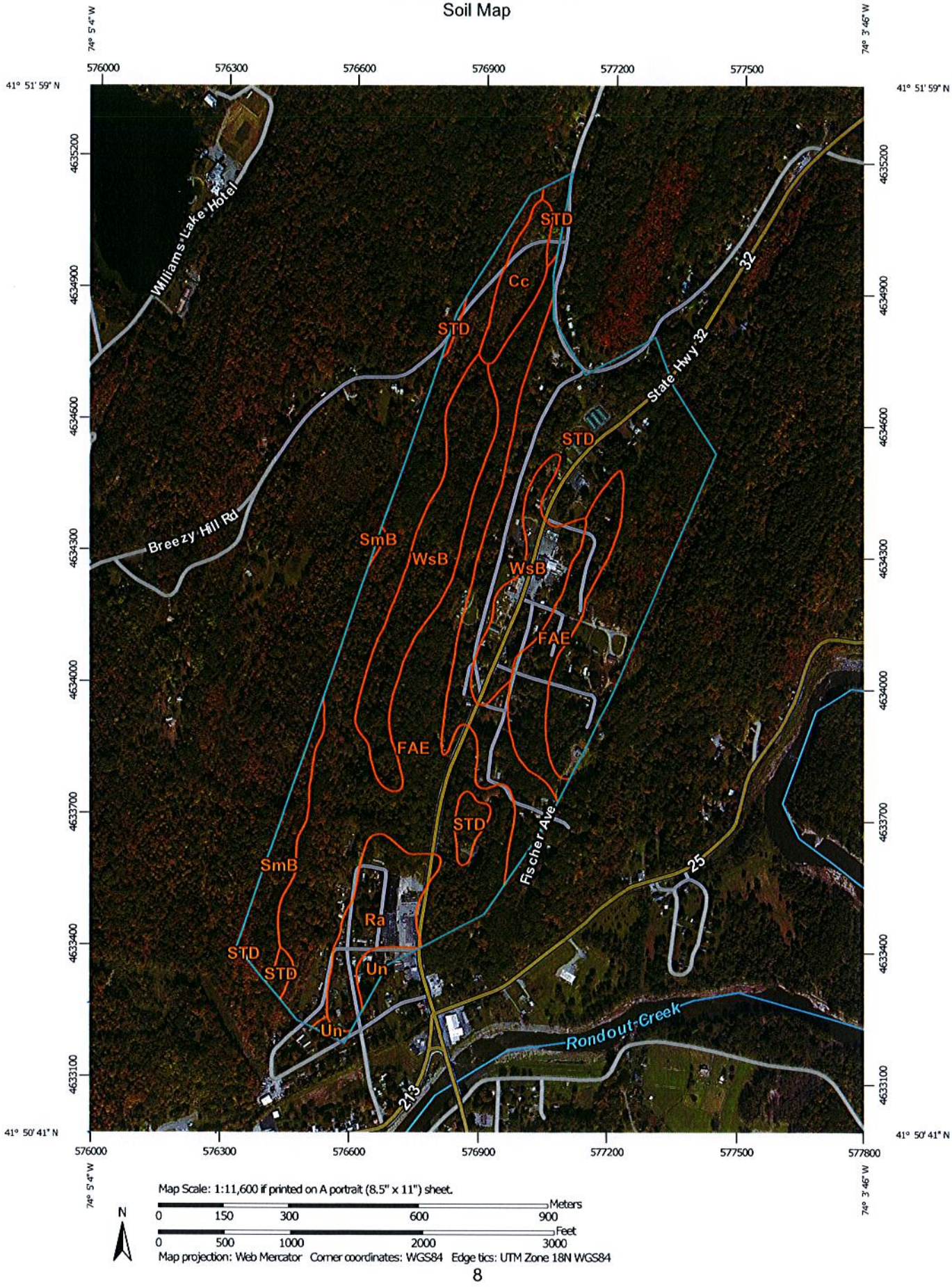
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map



Map Scale: 1:11,600 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 150 300 600 900

Feet: 0 500 1000 2000 3000

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

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

Special Point Features

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

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

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

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

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

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

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

Soil Survey Area: Ulster County, New York
Survey Area Data: Version 13, Sep 25, 2015

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

Date(s) aerial images were photographed: Mar 20, 2011—Oct 10, 2011

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

Map Unit Legend

Ulster County, New York (NY111)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Cc	Canandaigua silt loam	6.6	2.7%
FAE	Farmington-Rock outcrop complex, steep	97.8	40.2%
Ra	Raynham silt loam	13.2	5.4%
SmB	Stockbridge-Farmington gravelly silt loams, 3 to 8 percent slope	8.5	3.5%
STD	Stockbridge-Farmington-Rock outcrop complex, hilly	79.9	32.8%
Un	Unadilla silt loam	2.4	1.0%
WsB	Williamson silt loam, 3 to 8 percent slopes	35.0	14.4%
Totals for Area of Interest		**243.5**	**100.0%**

Map Unit Descriptions

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

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

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

where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

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

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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

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

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

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

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

Ulster County, New York

Cc—Canandaigua silt loam

Map Unit Setting

National map unit symbol: 9xfz
Elevation: 100 to 1,000 feet
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Canandaigua

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty and clayey glaciolacustrine deposits

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 37 inches: silt loam
H3 - 37 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water storage in profile: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Lamson

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Lyons

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Madalin

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Raynham

Percent of map unit: 5 percent
Hydric soil rating: No

FAE—Farmington-Rock outcrop complex, steep

Map Unit Setting

National map unit symbol: 9xgf
Elevation: 100 to 900 feet
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Farmington and similar soils: 45 percent
Rock outcrop: 30 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Farmington

Setting

Landform: Benches, ridges, till plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till or congeliturbate derived from limestone, dolomite, shale, and sandstone, and in many places mixed with wind and water deposits

Typical profile

O - 0 to 1 inches: slightly decomposed plant material
H1 - 1 to 6 inches: gravelly silt loam
H2 - 6 to 16 inches: gravelly silt loam
H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 25 to 60 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Available water storage in profile: Very low (about 2.3 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Rock Outcrop

Typical profile
H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities
Slope: 25 to 60 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Very low to very high (0.00 to 19.98 in/hr)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydric soil rating: Unranked

Minor Components

Lordstown
Percent of map unit: 5 percent
Hydric soil rating: No

Nassau
Percent of map unit: 5 percent
Hydric soil rating: No

Plainfield
Percent of map unit: 5 percent
Hydric soil rating: No

Stockbridge
Percent of map unit: 5 percent
Hydric soil rating: No

Valois
Percent of map unit: 5 percent
Hydric soil rating: No

Ra—Raynham silt loam

Map Unit Setting

National map unit symbol: 9xj3
Elevation: 50 to 500 feet
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Raynham and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Raynham

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Glaciolacustrine, eolian, or old alluvial deposits, comprised mainly of silt and very fine sand

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 37 inches: silt loam
H3 - 37 to 56 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Available water storage in profile: High (about 11.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Canandaigua

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Madalin

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Scio

Percent of map unit: 5 percent
Hydric soil rating: No

Unadilla

Percent of map unit: 5 percent
Hydric soil rating: No

Williamson

Percent of map unit: 5 percent
Hydric soil rating: No

SmB—Stockbridge-Farmington gravelly silt loams, 3 to 8 percent slope

Map Unit Setting

National map unit symbol: 9xjm
Elevation: 100 to 900 feet
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Stockbridge and similar soils: 50 percent
Farmington and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Stockbridge

Setting

Landform: Hills, till plains, drumlinoid ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous loamy till

Typical profile

H1 - 0 to 7 inches: gravelly silt loam
H2 - 7 to 34 inches: gravelly silt loam
H3 - 34 to 56 inches: gravelly silt loam
H4 - 56 to 60 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 40 to 80 inches to lithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Farmington

Setting

Landform: Benches, ridges, till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till or congeliturbate derived from limestone, dolomite, shale, and sandstone, and in many places mixed with wind and water deposits

Typical profile

O - 0 to 1 inches: slightly decomposed plant material
H1 - 1 to 6 inches: gravelly silt loam
H2 - 6 to 16 inches: gravelly silt loam
H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Available water storage in profile: Very low (about 2.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: D

Hydric soil rating: No

Minor Components

Bath
Percent of map unit: 5 percent
Hydric soil rating: No

Mardin
Percent of map unit: 5 percent
Hydric soil rating: No

Valois
Percent of map unit: 5 percent
Hydric soil rating: No

Volusia
Percent of map unit: 5 percent
Hydric soil rating: No

STD—Stockbridge-Farmington-Rock outcrop complex, hilly

Map Unit Setting
National map unit symbol: 9xjp
Elevation: 100 to 900 feet
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition
Stockbridge and similar soils: 30 percent
Farmington and similar soils: 30 percent
Rock outcrop: 20 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Stockbridge

Setting
Landform: Hills, till plains, drumlinoid ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous loamy till

Typical profile
H1 - 0 to 7 inches: gravelly silt loam
H2 - 7 to 34 inches: gravelly silt loam
H3 - 34 to 56 inches: gravelly silt loam

H4 - 56 to 60 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 40 to 80 inches to lithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Farmington

Setting

Landform: Benches, ridges, till plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till or congeliturbate derived from limestone, dolomite, shale, and sandstone, and in many places mixed with wind and water deposits

Typical profile

O - 0 to 1 inches: slightly decomposed plant material
H1 - 1 to 6 inches: gravelly silt loam
H2 - 6 to 16 inches: gravelly silt loam
H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Available water storage in profile: Very low (about 2.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Very low to very high (0.00 to 19.98 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydric soil rating: Unranked

Minor Components

Mardin

Percent of map unit: 5 percent
Hydric soil rating: No

Rhinebeck

Percent of map unit: 5 percent
Hydric soil rating: No

Valois

Percent of map unit: 5 percent
Hydric soil rating: No

Volusia

Percent of map unit: 5 percent
Hydric soil rating: No

Un—Unadilla silt loam

Map Unit Setting

National map unit symbol: 9xk2
Elevation: 600 to 1,800 feet
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Unadilla

Setting

Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Glaciolacustrine deposits, eolian deposits, or old alluvium, comprised mainly of silt and very fine sand

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 40 inches: silt loam
H3 - 40 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Available water storage in profile: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Raynham

Percent of map unit: 5 percent
Hydric soil rating: No

Riverhead

Percent of map unit: 5 percent
Hydric soil rating: No

Scio

Percent of map unit: 5 percent
Hydric soil rating: No

Suncook

Percent of map unit: 5 percent
Hydric soil rating: No

WsB—Williamson silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9xkm
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Williamson

Setting

Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Glaciolacustrine or eolian deposits with a high content of silt and very fine sand

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 18 inches: silt loam
H3 - 18 to 42 inches: very fine sandy loam
H4 - 42 to 52 inches: stratified silt loam to silty clay loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 15 to 24 inches to fragipan
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 14 to 23 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Hudson

Percent of map unit: 5 percent
Hydric soil rating: No

Riverhead

Percent of map unit: 5 percent
Hydric soil rating: No

Schoharie

Percent of map unit: 5 percent
Hydric soil rating: No

Unadilla

Percent of map unit: 5 percent
Hydric soil rating: No

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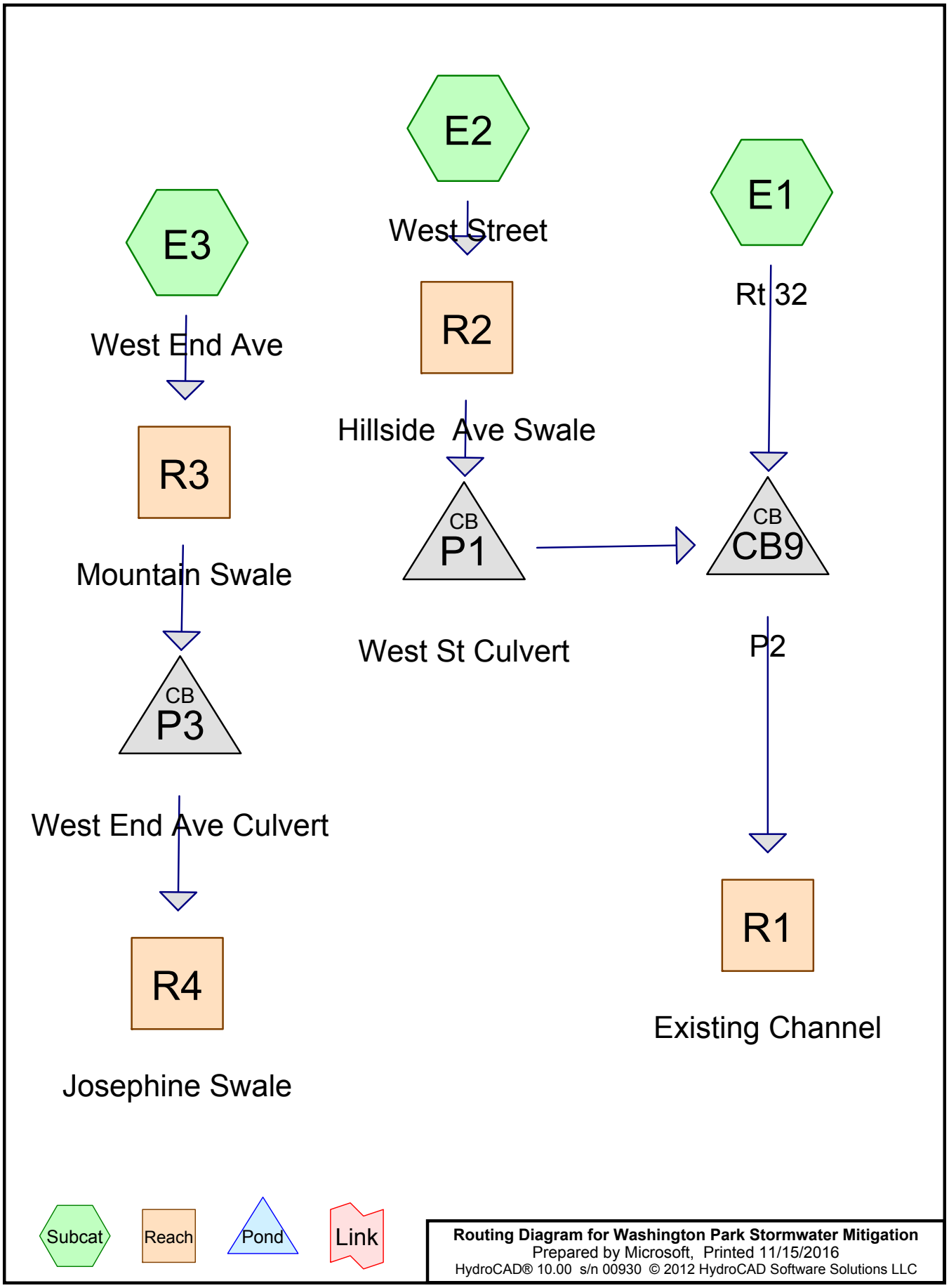
APPENDIX B

HYDROCAD OUTPUT AND HYDRAULIC CALCULATIONS



Routing Diagram for Washington Park Stormwater Mitigation
Prepared by Microsoft, Printed 11/15/2016
HydroCAD® 10.00 s/n 00930 © 2012 HydroCAD Software Solutions LLC

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: Rt 32 Runoff Area=217.900 ac 10.53% Impervious Runoff Depth>2.70"
Flow Length=4,900' Tc=332.2 min CN=72 Runoff=119.20 cfs 49.041 af

Subcatchment E2: West Street Runoff Area=12.300 ac 18.60% Impervious Runoff Depth>3.73"
Flow Length=2,310' Tc=105.5 min CN=75 Runoff=18.00 cfs 3.821 af

Subcatchment E3: West End Ave Runoff Area=33.100 ac 9.06% Impervious Runoff Depth>3.40"
Flow Length=1,870' Tc=121.5 min CN=72 Runoff=39.71 cfs 9.365 af

Reach R1: Existing Channel Avg. Flow Depth=2.31' Max Vel=5.48 fps Inflow=121.92 cfs 52.857 af
n=0.022 L=250.0' S=0.0040 '/' Capacity=627.54 cfs Outflow=121.90 cfs 52.722 af

Reach R2: Hillside Ave Swale Avg. Flow Depth=0.84' Max Vel=4.59 fps Inflow=18.00 cfs 3.821 af
n=0.022 L=210.0' S=0.0095 '/' Capacity=247.98 cfs Outflow=17.97 cfs 3.816 af

Reach R3: Mountain Swale Avg. Flow Depth=0.96' Max Vel=8.45 fps Inflow=39.71 cfs 9.365 af
n=0.022 L=500.0' S=0.0280 '/' Capacity=175.91 cfs Outflow=39.68 cfs 9.350 af

Reach R4: Josephine Swale Avg. Flow Depth=1.10' Max Vel=8.60 fps Inflow=39.68 cfs 9.350 af
n=0.022 L=180.0' S=0.0278 '/' Capacity=717.48 cfs Outflow=39.68 cfs 9.345 af

Pond CB9: P2 Peak Elev=60.92' Inflow=121.92 cfs 52.857 af
48.0" Round Culvert n=0.012 L=178.0' S=0.0065 '/' Outflow=121.92 cfs 52.857 af

Pond P1: West St Culvert Peak Elev=72.79' Inflow=17.97 cfs 3.816 af
24.0" Round Culvert n=0.012 L=750.0' S=0.0195 '/' Outflow=17.97 cfs 3.816 af

Pond P3: West End Ave Culvert Peak Elev=60.12' Inflow=39.68 cfs 9.350 af
30.0" Round Culvert x 2.00 n=0.012 L=548.0' S=0.0010 '/' Outflow=39.68 cfs 9.350 af

Total Runoff Area = 263.300 ac Runoff Volume = 62.226 af Average Runoff Depth = 2.84"
89.28% Pervious = 235.062 ac 10.72% Impervious = 28.238 ac

Summary for Subcatchment E1: Rt 32

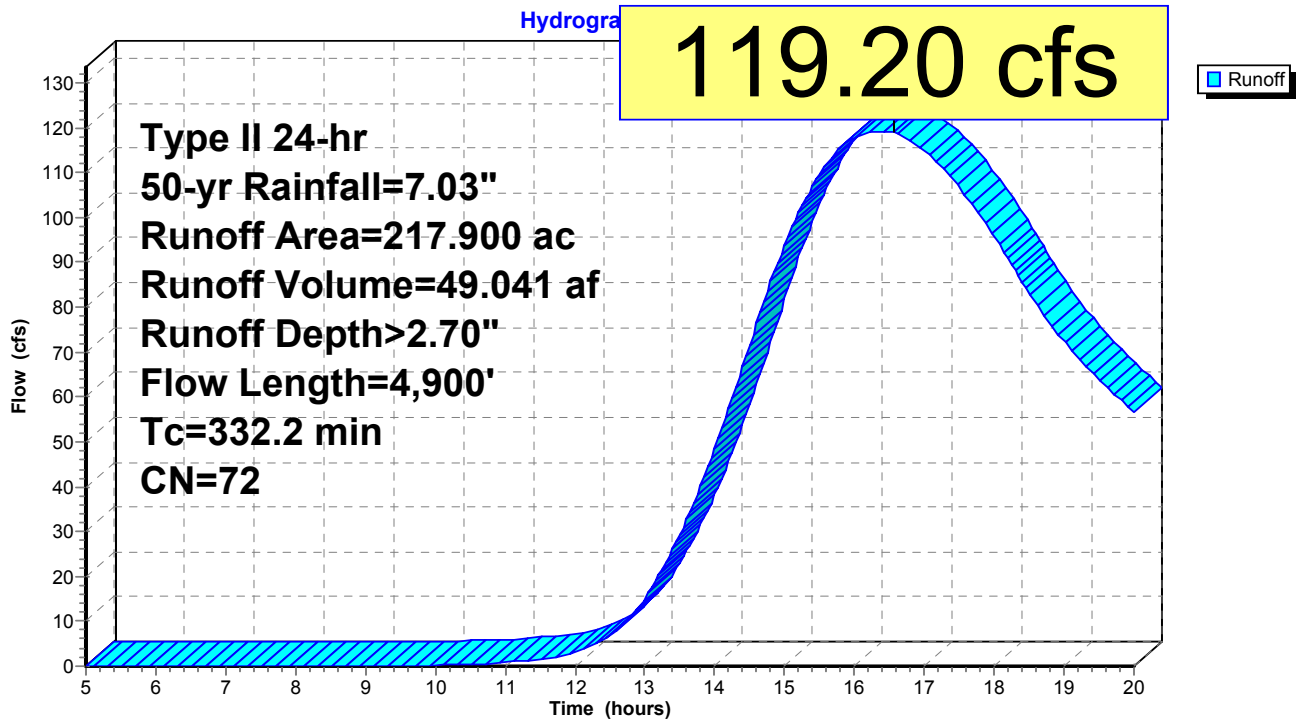
Runoff = 119.20 cfs @ 16.57 hrs, Volume= 49.041 af, Depth> 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=7.03"

	Area (ac)	CN	Description
*	9.000	98	Paved parking, HSG C/D
*	162.400	71	Woods, Good, HSG C/D
	46.500	72	1/3 acre lots, 30% imp, HSG B
	217.900	72	Weighted Average
	194.950		89.47% Pervious Area
	22.950		10.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.0	100	0.0150	0.04		**Sheet Flow, Sheet Flow** Woods: Dense underbrush n= 0.800 P2= 3.19"
101.2	300	0.0150	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.19"
188.6	4,000	0.0200	0.35		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.4	500	0.0500	21.82	720.17	**Channel Flow,** Area= 33.0 sf Perim= 19.0' r= 1.74' n= 0.022 Earth, clean & straight
332.2	4,900	Total			

Subcatchment E1: Rt 32



Summary for Subcatchment E2: West Street

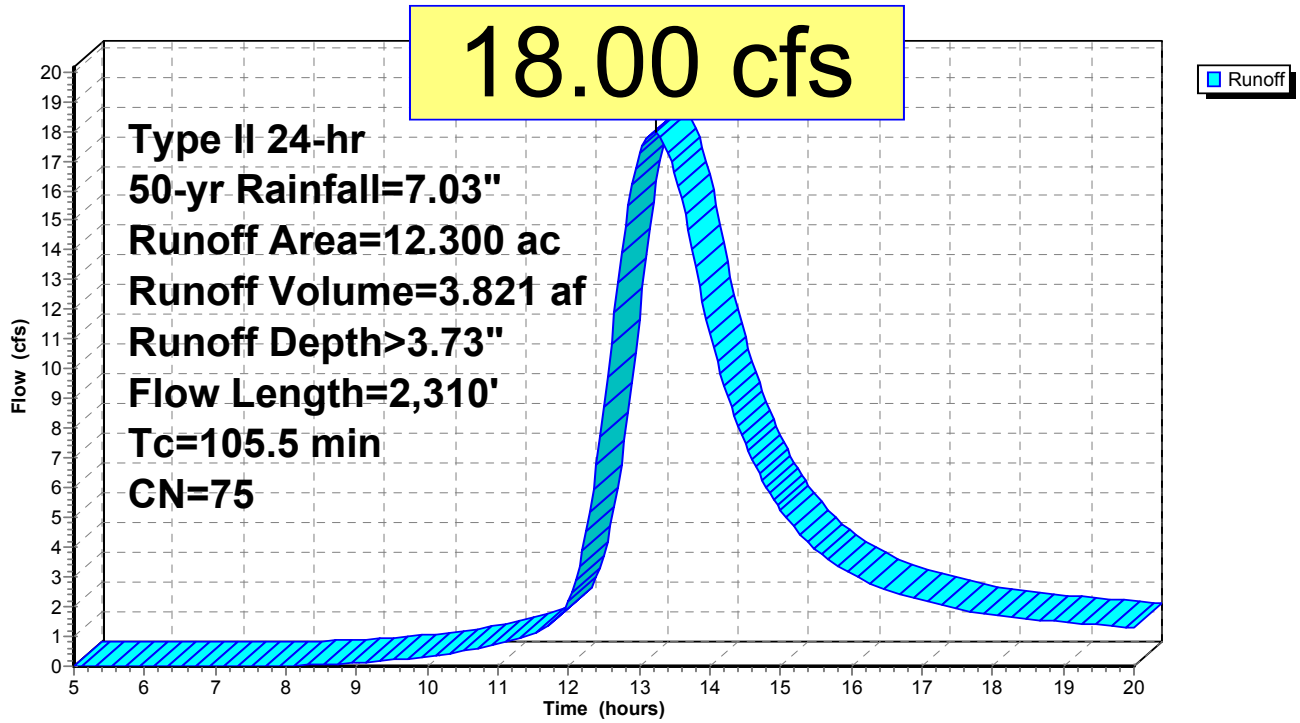
Runoff = 18.00 cfs @ 13.23 hrs, Volume= 3.821 af, Depth> 3.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=7.03"

	Area (ac)	CN	Description
*	1.300	98	Paved parking, HSG C/D
*	8.400	71	Woods, Good, HSG C/D
	2.600	75	1/4 acre lots, 38% imp, HSG B
	12.300	75	Weighted Average
	10.012		81.40% Pervious Area
	2.288		18.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.4	100	0.0100	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.19"
51.8	300	0.0800	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.19"
2.4	1,000	0.0500	6.86	226.34	**Channel Flow, Mountain stream** Area= 33.0 sf Perim= 19.0' r= 1.74' n= 0.070 Sluggish weedy reaches w/pools
0.4	210	0.0100	9.76	322.07	**Channel Flow, Hillside Ave** Area= 33.0 sf Perim= 19.0' r= 1.74' n= 0.022 Earth, clean & straight
1.5	700	0.0100	7.80	24.51	**Pipe Channel, West & Washington Ave** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012
105.5	2,310	Total			

Subcatchment E2: West Street



Summary for Subcatchment E3: West End Ave

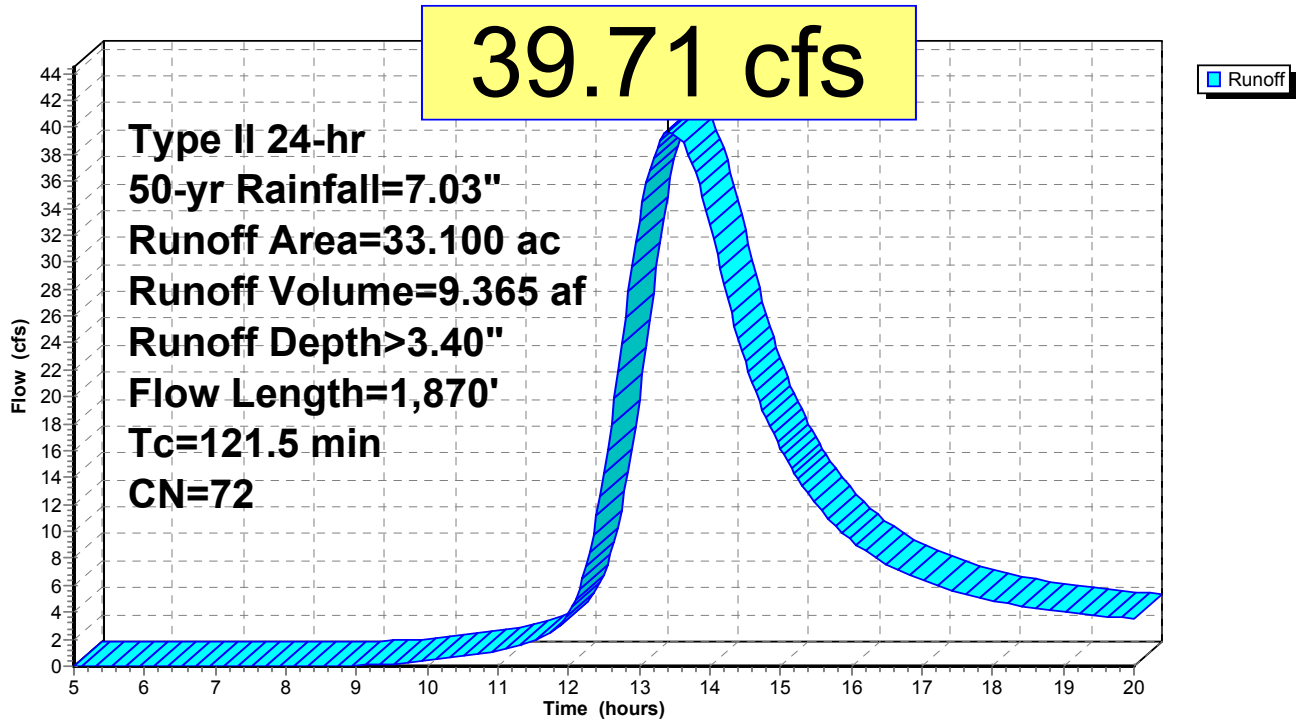
Runoff = 39.71 cfs @ 13.41 hrs, Volume= 9.365 af, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=7.03"

	Area (ac)	CN	Description
*	0.600	98	Paved parking, HSG C/D
*	24.500	71	Woods, Good, HSG C/D
	8.000	72	1/3 acre lots, 30% imp, HSG B
	33.100	72	Weighted Average
	30.100		90.94% Pervious Area
	3.000		9.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.4	100	0.0100	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.19"
58.1	150	0.0150	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.19"
5.3	500	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.7	700	0.0150	1.52	4.56	**Channel Flow, Mountain Swale** Area= 3.0 sf Perim= 19.0' r= 0.16' n= 0.035 Earth, dense weeds
1.0	420	0.0100	7.20	22.62	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
121.5	1,870	Total			

Subcatchment E3: West End Ave



Summary for Reach R1: Existing Channel

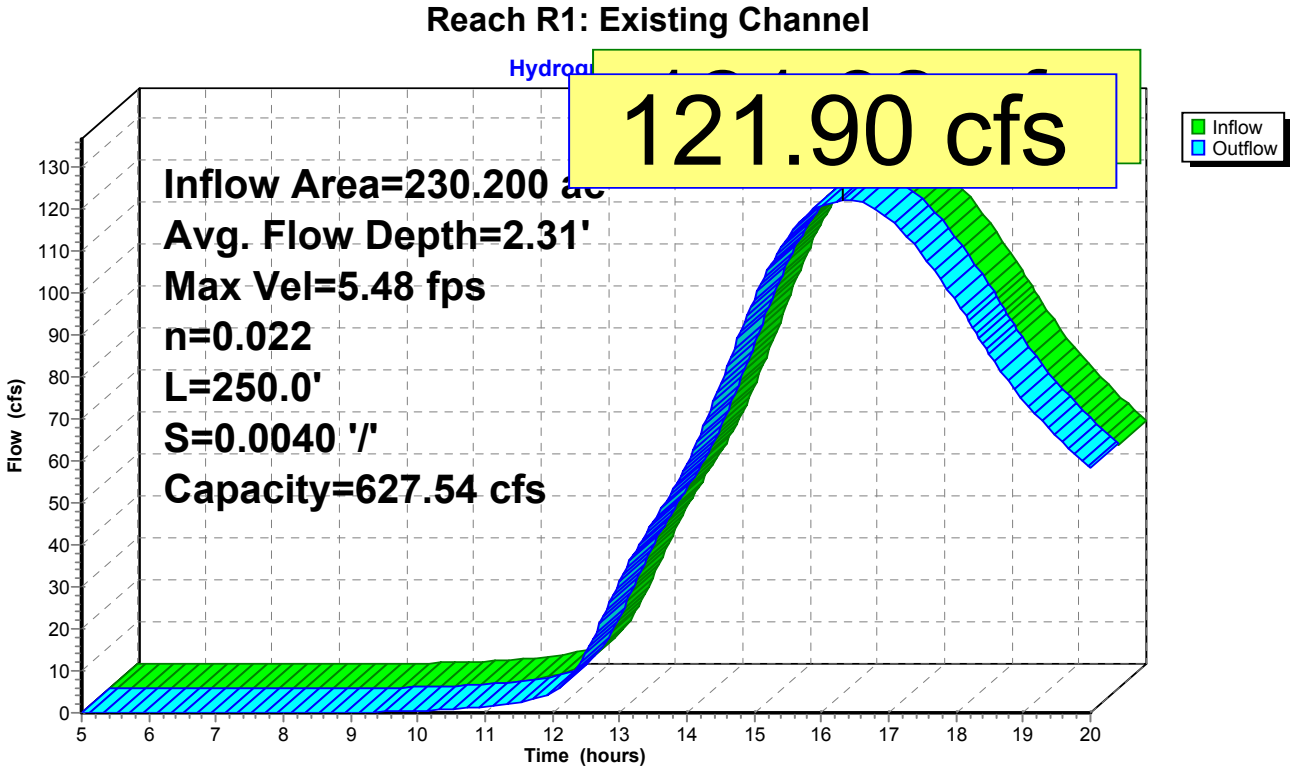
[79] Warning: Submerged Pond CB9 Primary device # 1 INLET by 0.52'

Inflow Area = 230.200 ac, 10.96% Impervious, Inflow Depth > 2.76" for 50-yr event
Inflow = 121.92 cfs @ 16.27 hrs, Volume= 52.857 af
Outflow = 121.90 cfs @ 16.31 hrs, Volume= 52.722 af, Atten= 0%, Lag= 2.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.48 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 3.32 fps, Avg. Travel Time= 1.3 min

Peak Storage= 5,566 cf @ 16.29 hrs
Average Depth at Peak Storage= 2.31'
Bank-Full Depth= 5.00' Flow Area= 75.0 sf, Capacity= 627.54 cfs

5.00' x 5.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 25.00'
Length= 250.0' Slope= 0.0040 '/'
Inlet Invert= 53.00', Outlet Invert= 52.00'



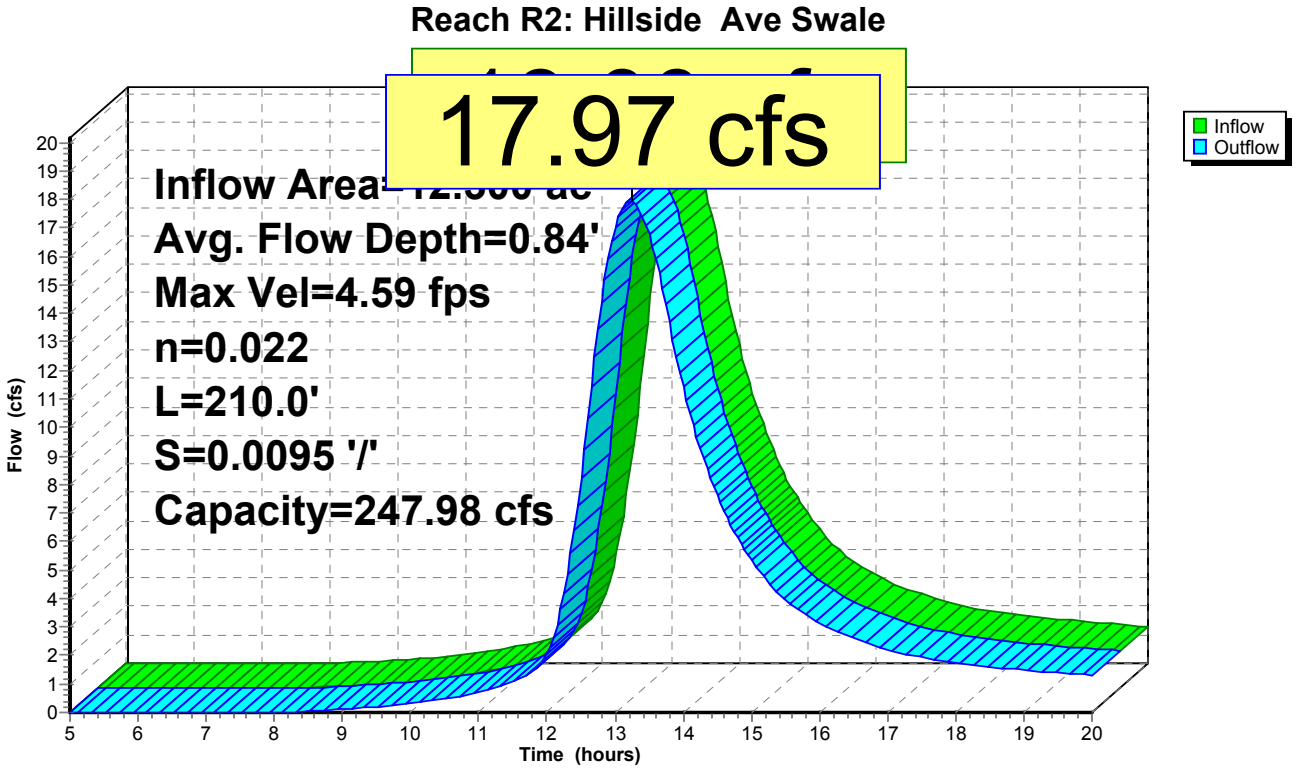
Summary for Reach R2: Hillside Ave Swale

Inflow Area = 12.300 ac, 18.60% Impervious, Inflow Depth > 3.73" for 50-yr event
Inflow = 18.00 cfs @ 13.23 hrs, Volume= 3.821 af
Outflow = 17.97 cfs @ 13.24 hrs, Volume= 3.816 af, Atten= 0%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.59 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.27 fps, Avg. Travel Time= 1.5 min

Peak Storage= 823 cf @ 13.23 hrs
Average Depth at Peak Storage= 0.84'
Bank-Full Depth= 3.00' Flow Area= 27.0 sf, Capacity= 247.98 cfs

3.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 15.00'
Length= 210.0' Slope= 0.0095 '/'
Inlet Invert= 74.00', Outlet Invert= 72.00'



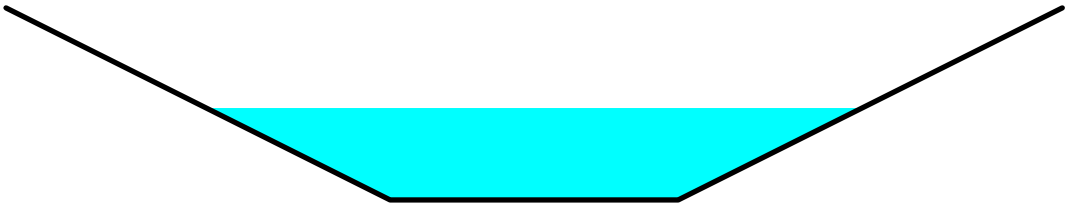
Summary for Reach R3: Mountain Swale

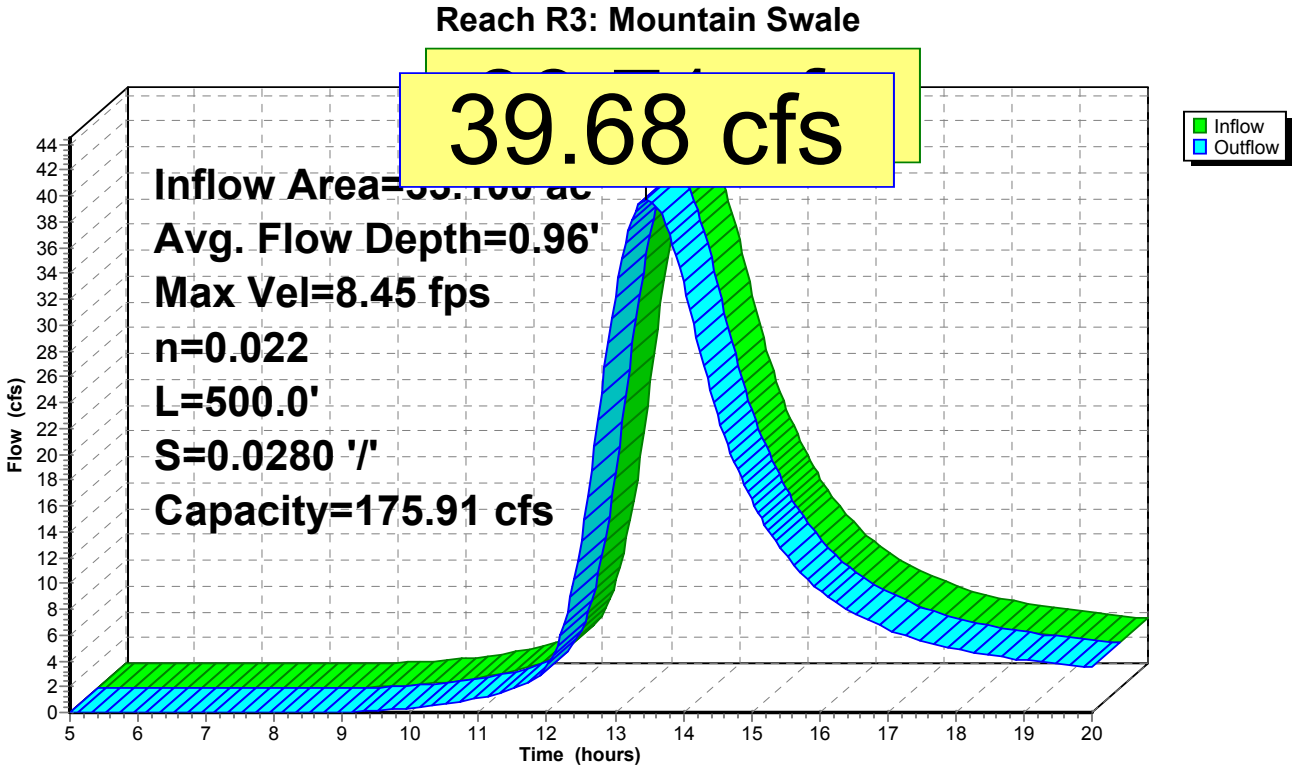
Inflow Area = 33.100 ac, 9.06% Impervious, Inflow Depth > 3.40" for 50-yr event
Inflow = 39.71 cfs @ 13.41 hrs, Volume= 9.365 af
Outflow = 39.68 cfs @ 13.45 hrs, Volume= 9.350 af, Atten= 0%, Lag= 2.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.45 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 4.47 fps, Avg. Travel Time= 1.9 min

Peak Storage= 2,352 cf @ 13.42 hrs
Average Depth at Peak Storage= 0.96'
Bank-Full Depth= 2.00' Flow Area= 14.0 sf, Capacity= 175.91 cfs

3.00' x 2.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 11.00'
Length= 500.0' Slope= 0.0280 '/'
Inlet Invert= 71.00', Outlet Invert= 57.00'





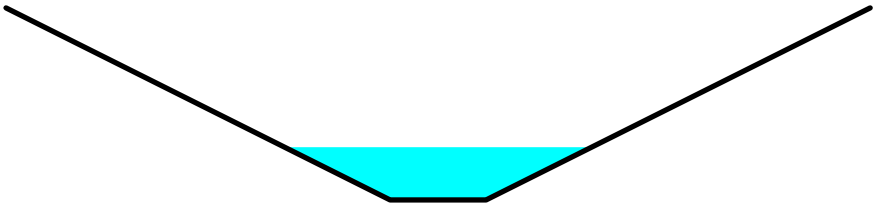
Summary for Reach R4: Josephine Swale

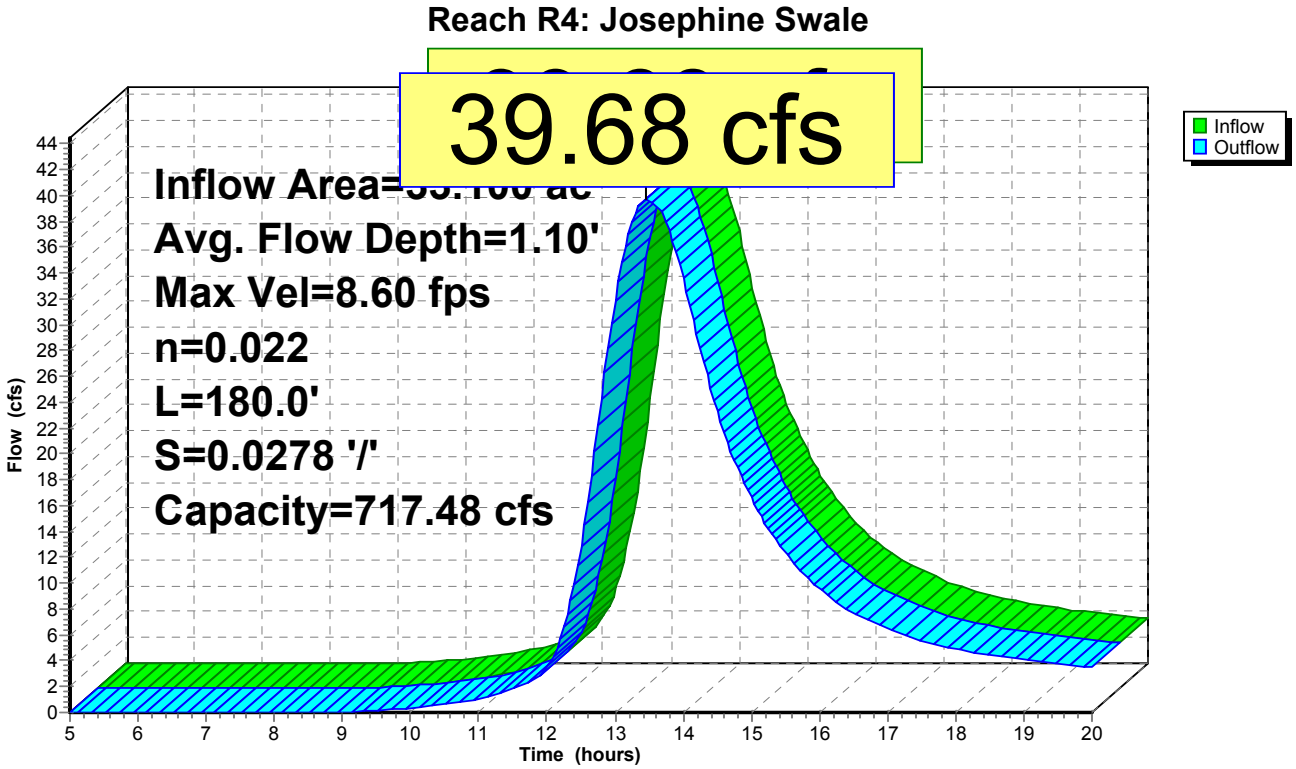
Inflow Area = 33.100 ac, 9.06% Impervious, Inflow Depth > 3.39" for 50-yr event
Inflow = 39.68 cfs @ 13.45 hrs, Volume= 9.350 af
Outflow = 39.68 cfs @ 13.46 hrs, Volume= 9.345 af, Atten= 0%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.60 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 4.77 fps, Avg. Travel Time= 0.6 min

Peak Storage= 831 cf @ 13.45 hrs
Average Depth at Peak Storage= 1.10'
Bank-Full Depth= 4.00' Flow Area= 40.0 sf, Capacity= 717.48 cfs

2.00' x 4.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 18.00'
Length= 180.0' Slope= 0.0278 '/'
Inlet Invert= 55.00', Outlet Invert= 50.00'





Summary for Pond CB9: P2

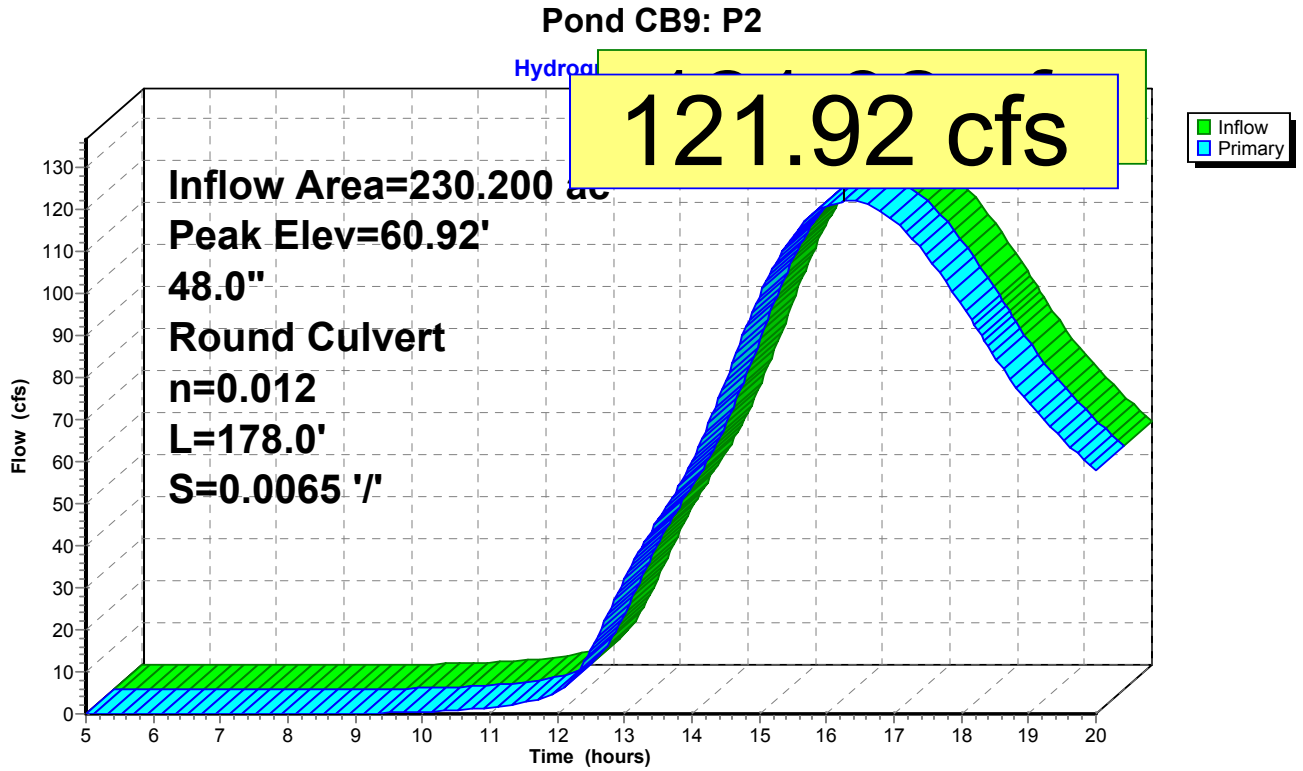
[57] Hint: Peaked at 60.92' (Flood elevation advised)
[79] Warning: Submerged Pond P1 Primary device # 1 OUTLET by 5.13'

Inflow Area =	230.200 ac,	10.96% Impervious,	Inflow Depth >	2.76"	for 50-yr event
Inflow =	121.92 cfs @	16.27 hrs,	Volume=	52.857 af	
Outflow =	121.92 cfs @	16.27 hrs,	Volume=	52.857 af,	Atten= 0%, Lag= 0.0 min
Primary =	121.92 cfs @	16.27 hrs,	Volume=	52.857 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 60.92' @ 16.27 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	54.79'	**48.0" Round P1** L= 178.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 54.79' / 53.63' S= 0.0065 '/' Cc= 0.900 n= 0.012, Flow Area= 12.57 sf

Primary OutFlow Max=121.90 cfs @ 16.27 hrs HW=60.92' (Free Discharge)
└**1=P1** (Barrel Controls 121.90 cfs @ 9.70 fps)



Summary for Pond P1: West St Culvert

[57] Hint: Peaked at 72.79' (Flood elevation advised)
[61] Hint: Exceeded Reach R2 outlet invert by 0.79' @ 13.25 hrs

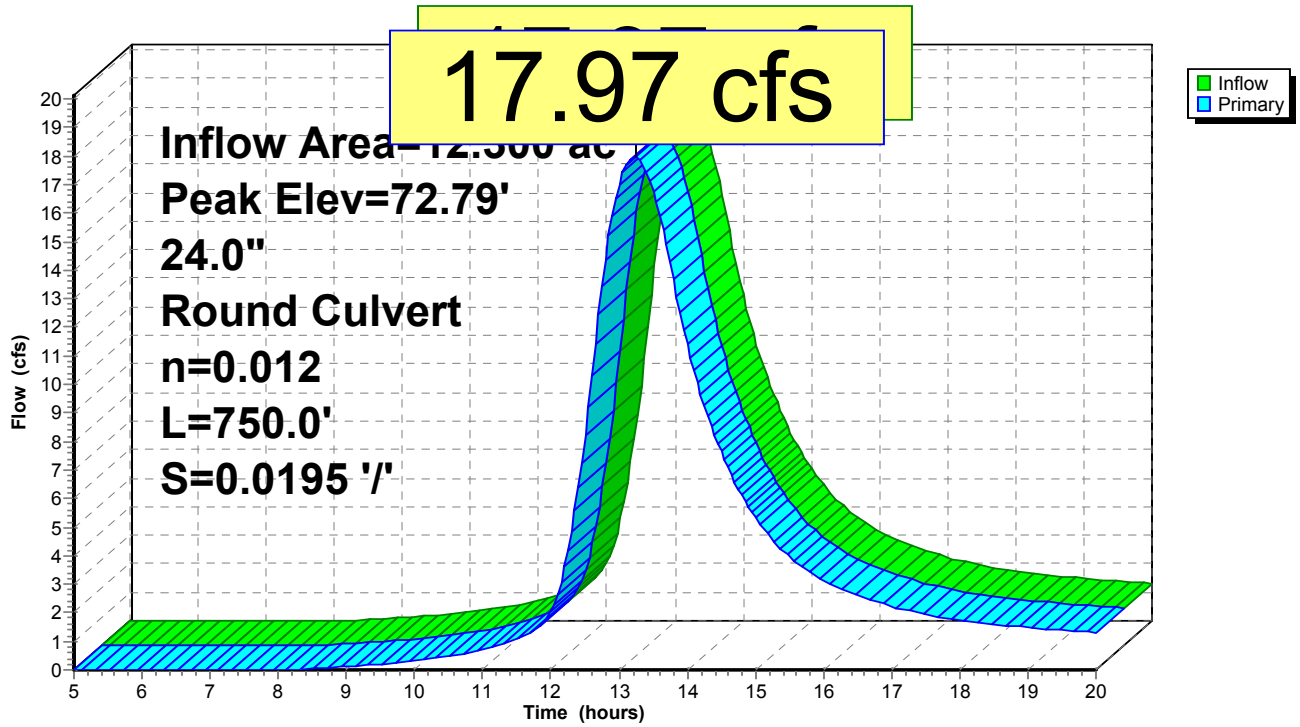
Inflow Area =	12.300 ac, 18.60% Impervious, Inflow Depth > 3.72" for 50-yr event				
Inflow =	17.97 cfs @	13.24 hrs, Volume=	3.816 af		
Outflow =	17.97 cfs @	13.24 hrs, Volume=	3.816 af, Atten= 0%, Lag= 0.0 min		
Primary =	17.97 cfs @	13.24 hrs, Volume=	3.816 af		

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 72.79' @ 13.24 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	70.38'	**24.0" Round Culvert** L= 750.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 70.38' / 55.79' S= 0.0195 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=17.96 cfs @ 13.24 hrs HW=72.79' (Free Discharge)
└**1=Culvert** (Inlet Controls 17.96 cfs @ 5.72 fps)

Pond P1: West St Culvert



Summary for Pond P3: West End Ave Culvert

[57] Hint: Peaked at 60.12' (Flood elevation advised)
[62] Hint: Exceeded Reach R3 OUTLET depth by 2.16' @ 13.45 hrs

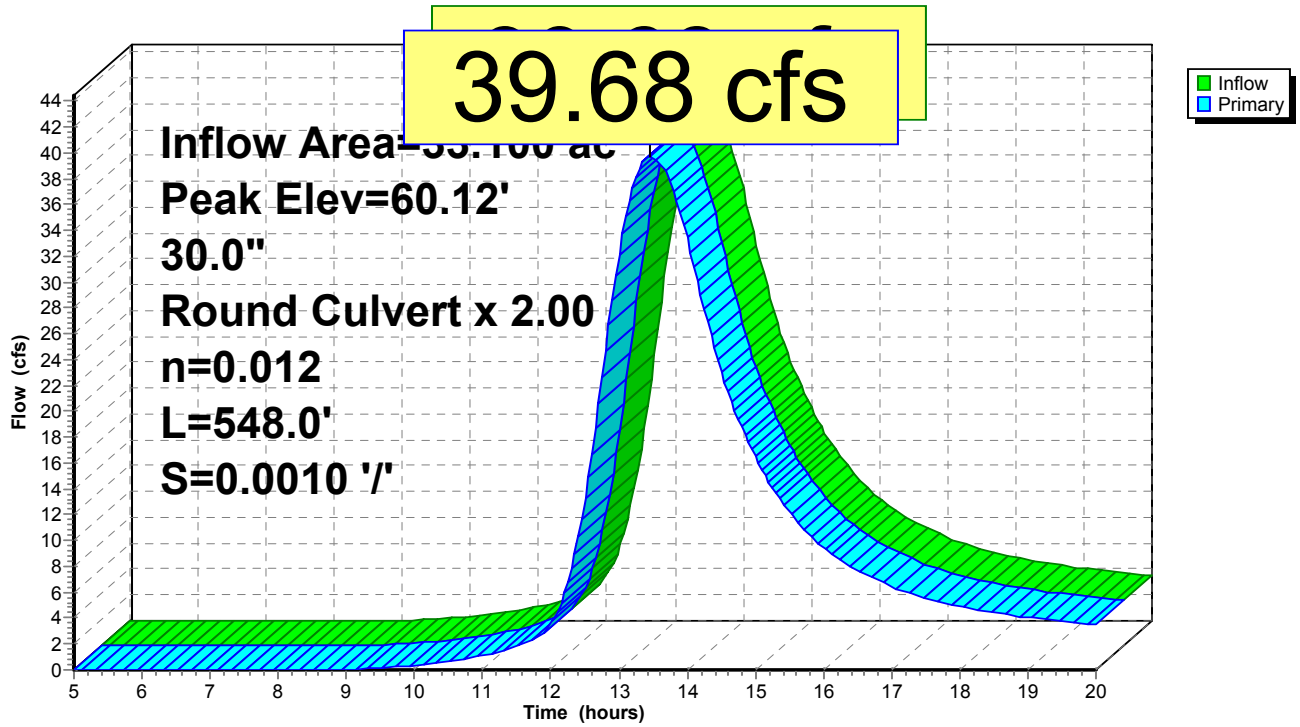
Inflow Area =	33.100 ac,	9.06% Impervious,	Inflow Depth >	3.39"	for 50-yr event
Inflow =	39.68 cfs @	13.45 hrs,	Volume=	9.350 af	
Outflow =	39.68 cfs @	13.45 hrs,	Volume=	9.350 af,	Atten= 0%, Lag= 0.0 min
Primary =	39.68 cfs @	13.45 hrs,	Volume=	9.350 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 60.12' @ 13.45 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	56.67'	**30.0" Round West End X 2.00** L= 548.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 56.67' / 56.14' S= 0.0010 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf

Primary OutFlow Max=39.68 cfs @ 13.45 hrs HW=60.12' (Free Discharge)
└**1=West End** (Barrel Controls 39.68 cfs @ 4.04 fps)

Pond P3: West End Ave Culvert



Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New York
Location	
Longitude	74.076 degrees West
Latitude	41.847 degrees North
Elevation	0 feet
Date/Time	Mon, 17 Oct 2016 10:30:48 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.31	0.47	0.58	0.77	0.96	1.20	**1yr**	0.83	1.12	1.38	1.71	2.12	2.62	3.02	**1yr**	2.32	2.91	3.39	4.02	4.58	**1yr**
2yr	0.37	0.57	0.71	0.93	1.17	1.47	**2yr**	1.01	1.34	1.69	2.09	2.58	3.19	3.63	**2yr**	2.82	3.49	3.99	4.68	5.32	**2yr**
5yr	0.43	0.67	0.84	1.13	1.45	1.83	**5yr**	1.25	1.66	2.12	2.63	3.24	3.99	4.59	**5yr**	3.53	4.42	5.01	5.77	6.54	**5yr**
10yr	0.48	0.76	0.96	1.31	1.70	2.17	**10yr**	1.47	1.96	2.51	3.13	3.85	4.73	5.49	**10yr**	4.18	5.28	5.96	6.76	7.64	**10yr**
25yr	0.57	0.91	1.15	1.59	2.10	2.70	**25yr**	1.81	2.43	3.15	3.93	4.84	5.92	6.96	**25yr**	5.24	6.69	7.51	8.33	9.40	**25yr**
50yr	0.63	1.02	1.31	1.83	2.47	3.21	**50yr**	2.13	2.86	3.75	4.68	5.76	7.03	8.33	**50yr**	6.22	8.01	8.95	9.77	11.00	**50yr**
100yr	0.73	1.18	1.51	2.14	2.91	3.81	**100yr**	2.51	3.37	4.45	5.57	6.85	8.34	9.98	**100yr**	7.38	9.60	10.66	11.47	12.88	**100yr**
200yr	0.82	1.34	1.74	2.49	3.43	4.52	**200yr**	2.96	3.98	5.30	6.63	8.16	9.91	11.96	**200yr**	8.77	11.50	12.72	13.46	15.09	**200yr**
500yr	0.98	1.62	2.11	3.06	4.28	5.66	**500yr**	3.69	4.95	6.66	8.35	10.27	12.44	15.21	**500yr**	11.01	14.63	16.08	16.65	18.61	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.52	0.70	0.86	0.99	**1yr**	0.75	0.97	1.17	1.48	1.83	2.28	2.62	**1yr**	2.02	2.52	2.64	3.63	4.05	**1yr**
2yr	0.36	0.55	0.68	0.92	1.13	1.32	**2yr**	0.98	1.30	1.50	1.92	2.43	3.07	3.51	**2yr**	2.72	3.37	3.87	4.56	5.17	**2yr**
5yr	0.39	0.61	0.75	1.03	1.31	1.53	**5yr**	1.13	1.50	1.73	2.23	2.81	3.67	4.21	**5yr**	3.25	4.05	4.65	5.34	6.07	**5yr**
10yr	0.43	0.66	0.82	1.15	1.48	1.71	**10yr**	1.28	1.68	1.91	2.48	3.11	4.16	4.85	**10yr**	3.68	4.67	5.35	5.98	6.83	**10yr**

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
25yr	0.49	0.74	0.92	1.32	1.73	1.96	**25yr**	1.50	1.92	2.19	2.79	3.53	4.93	5.86	**25yr**	4.36	5.64	6.47	6.97	7.95	**25yr**
50yr	0.53	0.81	1.01	1.46	1.96	2.16	**50yr**	1.69	2.11	2.42	3.09	3.90	5.62	6.78	**50yr**	4.97	6.52	7.49	7.84	8.96	**50yr**
100yr	0.59	0.89	1.12	1.61	2.21	2.40	**100yr**	1.91	2.34	2.68	3.43	4.32	6.42	7.86	**100yr**	5.68	7.55	8.69	8.85	10.08	**100yr**
200yr	0.66	0.99	1.25	1.81	2.53	2.64	**200yr**	2.18	2.58	2.95	3.81	4.76	7.34	9.14	**200yr**	6.50	8.79	10.13	10.01	11.38	**200yr**
500yr	0.76	1.14	1.46	2.13	3.02	3.03	**500yr**	2.61	2.96	3.36	4.39	5.42	8.81	11.20	**500yr**	7.80	10.77	12.43	11.80	13.41	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.33	0.52	0.63	0.85	1.04	1.26	**1yr**	0.90	1.23	1.42	1.82	2.29	2.87	3.29	**1yr**	2.54	3.16	3.63	4.32	4.92	**1yr**
2yr	0.39	0.60	0.74	1.00	1.23	1.46	**2yr**	1.06	1.43	1.67	2.13	2.68	3.33	3.78	**2yr**	2.95	3.64	4.14	4.89	5.55	**2yr**
5yr	0.47	0.73	0.91	1.25	1.59	1.88	**5yr**	1.37	1.84	2.17	2.77	3.48	4.35	5.00	**5yr**	3.85	4.81	5.43	6.23	7.03	**5yr**
10yr	0.56	0.86	1.07	1.50	1.93	2.33	**10yr**	1.67	2.27	2.66	3.42	4.27	5.34	6.20	**10yr**	4.73	5.96	6.66	7.50	8.48	**10yr**
25yr	0.70	1.07	1.33	1.90	2.49	3.08	**25yr**	2.15	3.01	3.54	4.70	5.62	7.02	8.23	**25yr**	6.21	7.92	8.72	9.57	10.82	**25yr**
50yr	0.83	1.26	1.57	2.26	3.04	3.72	**50yr**	2.63	3.64	4.40	5.86	6.90	8.64	10.18	**50yr**	7.65	9.79	10.70	11.53	13.00	**50yr**
100yr	0.98	1.49	1.86	2.69	3.69	4.60	**100yr**	3.19	4.50	5.46	7.31	8.49	10.61	12.59	**100yr**	9.39	12.11	13.12	13.90	15.62	**100yr**
200yr	1.17	1.76	2.23	3.22	4.50	5.66	**200yr**	3.88	5.53	6.79	9.14	10.47	13.04	15.59	**200yr**	11.54	14.99	16.07	16.76	18.80	**200yr**
500yr	1.47	2.19	2.82	4.10	5.83	7.47	**500yr**	5.03	7.30	9.06	12.27	13.82	17.09	20.64	**500yr**	15.13	19.84	21.01	21.45	24.00	**500yr**

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Northeast Regional Climate Center

Capacity of a Pipe Flowing Full

Mannings Equation

$$Q = V \times A = \frac{1.49}{n} \times R^{2/3} \times S^{1/2} \times A$$

where:

n = roughness coefficient

= 0.012 HDPE or PVC sewer pipe

R = hydraulic radius = $\frac{\text{cross sectional area}}{\text{wetted perimeter}}$

S = slope or hydraulic gradient

A = cross sectional area (ft2) = 3.14 x r^2 for a pipe flowing full

P = wetted perimeter (ft) = 2 x 3.14 x r for a pipe flowing full

Pipe Diameter (inches)	Pipe Radius (ft)	Mannings n	Slope (%)	$S^{1/2}$	A (ft2)	P (ft)	R	$R^{2/3}$	**Q (cfs)**	V (fps)	Comments
Eastern Drainage System											
48	2	0.012	0.65%	0.081	12.566	12.566	1.000	1.000	**125.8**	10.0	OK for 50 yr storm 122 cfs
36	1.5	0.012	0.65%	0.081	7.069	9.425	0.750	0.825	**58.4**	8.3	OK for West St 18 cfs
24	1	0.012	1.00%	0.100	3.142	6.283	0.500	0.630	**24.6**	7.8	OK for West St 18 cfs
24	1	0.012	1.67%	0.129	3.142	6.283	0.500	0.630	**31.8**	10.1	OK for West St 18 cfs
18	0.75	0.012	1.67%	0.129	1.767	4.712	0.375	0.520	**14.7**	8.3	Too small for West Street
Western Drainage System											
36	1.5	0.012	0.10%	0.032	7.069	9.425	0.750	0.825	**22.9**	3.2	Pipe diameter too large for the flat site conditions
30	1.25	0.012	0.10%	0.032	4.909	7.854	0.625	0.731	**14.1**	2.9	Need two pipes to carry 3hr weighted peak 50 year storm flow = 25 cfs
24	1	0.012	0.10%	0.032	3.142	6.283	0.500	0.630	**7.8**	2.5	Too small
18	0.75	0.012	0.10%	0.032	1.767	4.712	0.375	0.520	**3.6**	2.0	Too small

Washington Park Stormwater Mitigation					
Eastern Drainage Area					
Flows from HydroCAD output for P1-West Street Culvert					
Time	Peak Flow (cfs)	Duration (hrs)			
13.00	17.03	0.25			
13.25	**17.97**	0.25			
13.50	16.77	0.25			
13.75	14.32	0.25			
14.00	11.41	0.25			
					Required HDPE Culvert Sizes:
Instantaneous Peak Flow			18.0	cfs	24" @ 1.67% slope-Capacity=31.8 cfs
One Hour Area Weighted Average =			15.5	cfs	18" @ 2.1% slope- Capacity=16.5 cfs
Western Drainage Area					
Flows from HydroCAD output for P3-West End Avenue Culvert					
Time	Peak Flow (cfs)	Duration (hrs)			
12.50	13.24	0.25			
12.75	22.67	0.25			
13.00	32.16	0.25			
13.25	38.07	0.25			
13.50	**39.62**	0.25			
13.75	37.76	0.25			
14.00	33.40	0.25			
14.25	27.97	0.25			
14.50	23.09	0.25			
14.75	19.43	0.25			
15.00	16.50	0.25			
15.25	14.13	0.25			
15.50	12.23	0.25			
					Required Culverts:
Instantaneous Peak Flow			39.6	cfs	three 30" HDPE culverts
One Hr Area Weighted Average (13-14 hrs) =			36.2	cfs	two 30" plus one 24" HDPE culvert
Two Hr Area Weighted Average (12.75-14.75 hrs)			30.5	cfs	two 30" plus one 18" HDPE culvert
Three Hr Area Weighted Average (12.5-15.5 hrs)			**25.4**	**cfs**	**two 30" HDPE culverts**
Recommend two 30" HDPE culverts = 14.1cfs x 2 = 28.2 cfs total capacity					

TenCate Geosynthetics
North America

Flexible Pavement Analysis Report

Project Name: Parking Lot

Analysis 1 - Hotel Parking Lot | Report Date: 10/27/2015 | Report Run By: John Folts

Initial Road Data (Pre-Reinforcement)

Subgrade Strength Value	Strength Parameter	Subgrade CBR
2.00	CBR, soaked (ASTM D1883)	2.00

Structural Number (SN)	Traffic Volume (ESALs)
4.67	1,963,071

Traffic Volume Calculator Data (ESALs)

Initial Serviceability (ρ_o)	Terminal Serviceability (ρ_t)	Serviceability Loss (ΔPSI)
4.2	2.5	1.7
Reliability % (R)	**Standard Deviation (S_0)**	**Standard Normal Deviate (Z_R)**
85.00	0.45	-1.037
Resilient Modulus (Mr) (psi)	**Unreinforced ESALs**	**Reinforced ESALs**
3,982	1,963,071	1,934,764

No Reinforcement / Stabilization

Layer No.	Material Description	Structural Coefficient	Drainage Coefficient	Thickness (in)	Structural Number (Unreinforced)
1	ACC Surface	0.43	1.00	1.00	0.43
2	ACC Base	0.35	1.00	2.50	0.88
3	Base Course	0.14	1.00	**12.00**	1.68
4	Sub-Base Course	0.14	1.00	12.00	1.68
		Subgrade CBR: 2.00			4.67

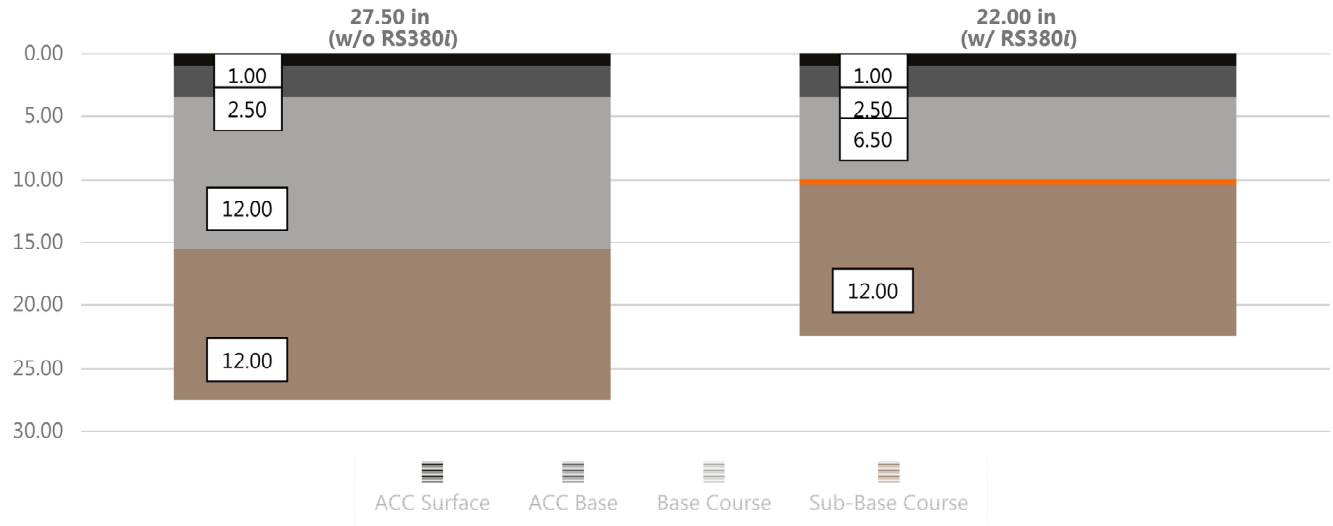
Reinforced / Stabilized - Geosynthetic Used: Mirafi® RS380*i*

Product Spec Sheet for RS380*i*

Layer No.	Material Description	Structural Coefficient	Drainage Coefficient	Thickness (in)	Structural Number (Unreinforced)
1	ACC Surface	0.43	1.00	1.00	0.43
2	ACC Base	0.35	1.00	2.50	0.88
3	Base Course (Reinforced)	0.26	1.00	**6.50**	1.68
		TenCate Mirafi® RS380*i* Geosynthetic			
4	Sub-Base Course	0.14	1.00	12.00	1.68
		Subgrade CBR: 2.00			4.66

NOTE: Structural Numbers represent the results of calculations prior to the rounding of thicknesses and therefore may be slightly different than manual calculations done using the reported thicknesses.

Total Savings Base Course = 5.50 inches, OR 1,075.56 yd3 per lane/mile (45.83% per lane/mile)



The information herein is accurate to the best of our knowledge. TenCate Geosynthetics North America assumes no liability for the accuracy or completeness of this information or for the ultimate use by the purchaser. TENCATE GEOSYNTHETICS NORTH AMERICA DISCLAIMS ANY AND ALL EXPRESS, IMPLIED, OR STATUTORY STANDARDS, WARRANTIES, OR GUARANTEES, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE arising from a course of dealing or usage of trade as to any equipment, materials, or information furnished herewith. This document should not be construed as engineering advice. Users should satisfy themselves through independent investigation that these materials might be used safely. No warranty or guarantee, expressed or implied, is made regarding the performance of any product, since the manner of use and handling are beyond our control. Any and all design related to a product will be the responsibility of the project engineer and/or registered engineer of record.

365 South Holland Drive
Pendergrass, GA 30567

Tel 706 693 2226
Tel 888 795 0808

Fax 706 693 4400
www.mirafi.com

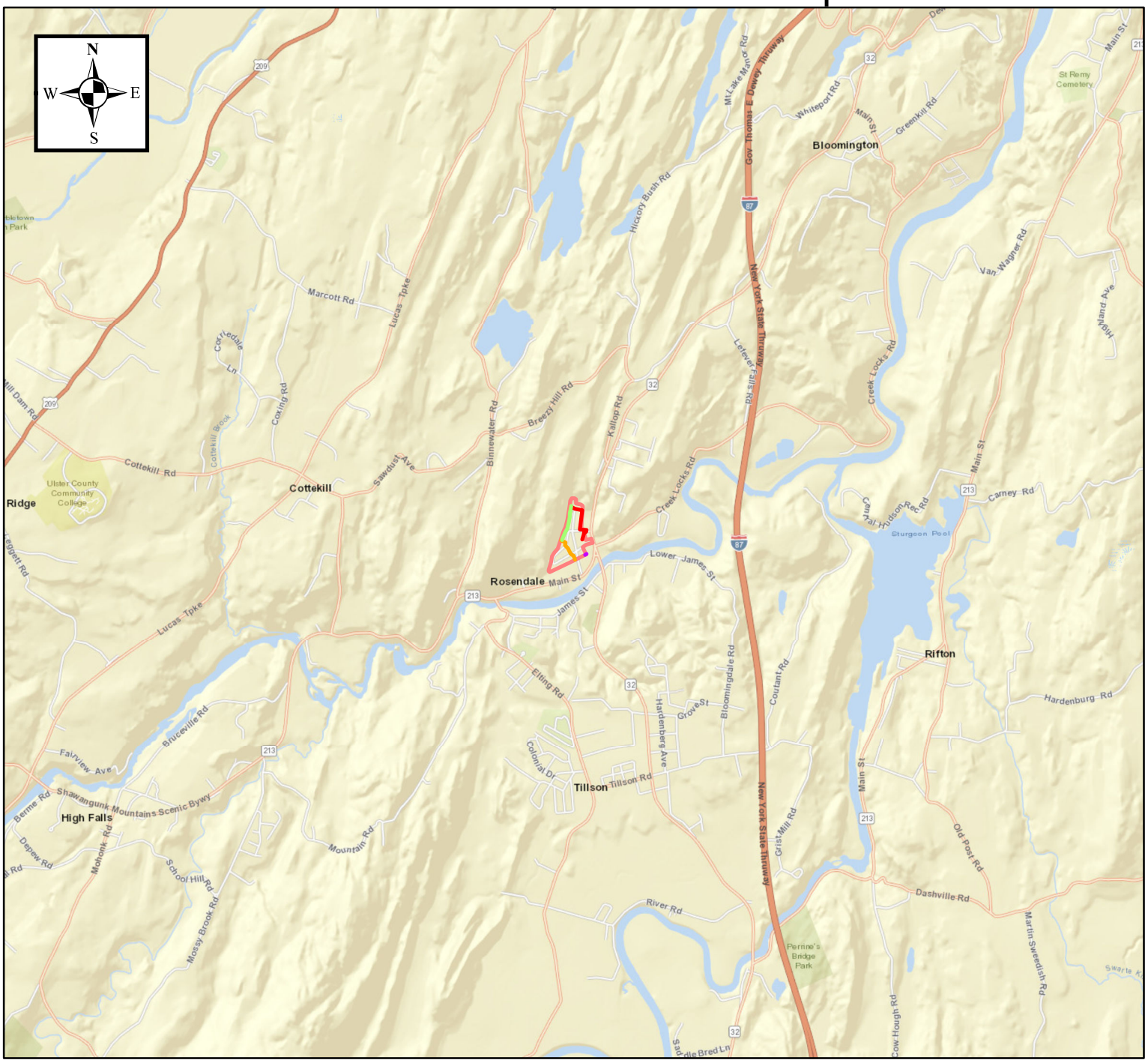
APPENDIX C

30% DESIGN DRAWINGS
(under separate cover)

Attachment 3

NYSDEC Wild and Scenic Rivers map;
NYSDEC Environmental Resource Map;
USFWS NWI Map; &
NYSDEC Coastal Boundary and
Tidal Wetland Map

Wild and Scenic Rivers Map



TECTONIC

Practical Solutions, Exceptional Service

0 2,500 5,000 10,000 Feet

1:50,000

Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

Created: 5/8/2017

Data Sources:
List of Wild, Scenic, and Recreational Rivers provided by the NYSDEC at http://www.dec.ny.gov/permits/32739.html

Legend

Approximate Work Locations

- **Eastern Drainage System**
- **Mountain Swale**
- **Western Drainage System**
- **Pedestrian Bridge**
- **Washington Park (Approximate Boundary)**
- **Wild and Scenic Rivers**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Environmental Resource Mapper

Base Map: Topographical

Search

Tools

Layers and Legend

- [x] **All Layers**
- [x] Unique Geological Features
- [x] Waterbody Classifications for Rivers/Streams
- [x] Waterbody Classifications for Lakes
- [x] State Regulated Freshwater Wetlands
  - State Regulated Wetland Checkzone
- [x] Significant Natural Communities
  - Natural Communities Near This Location
- [x] Rare Plants and Rare Animals

Other Wetland Layers

Reference Layers

Tell Me More...

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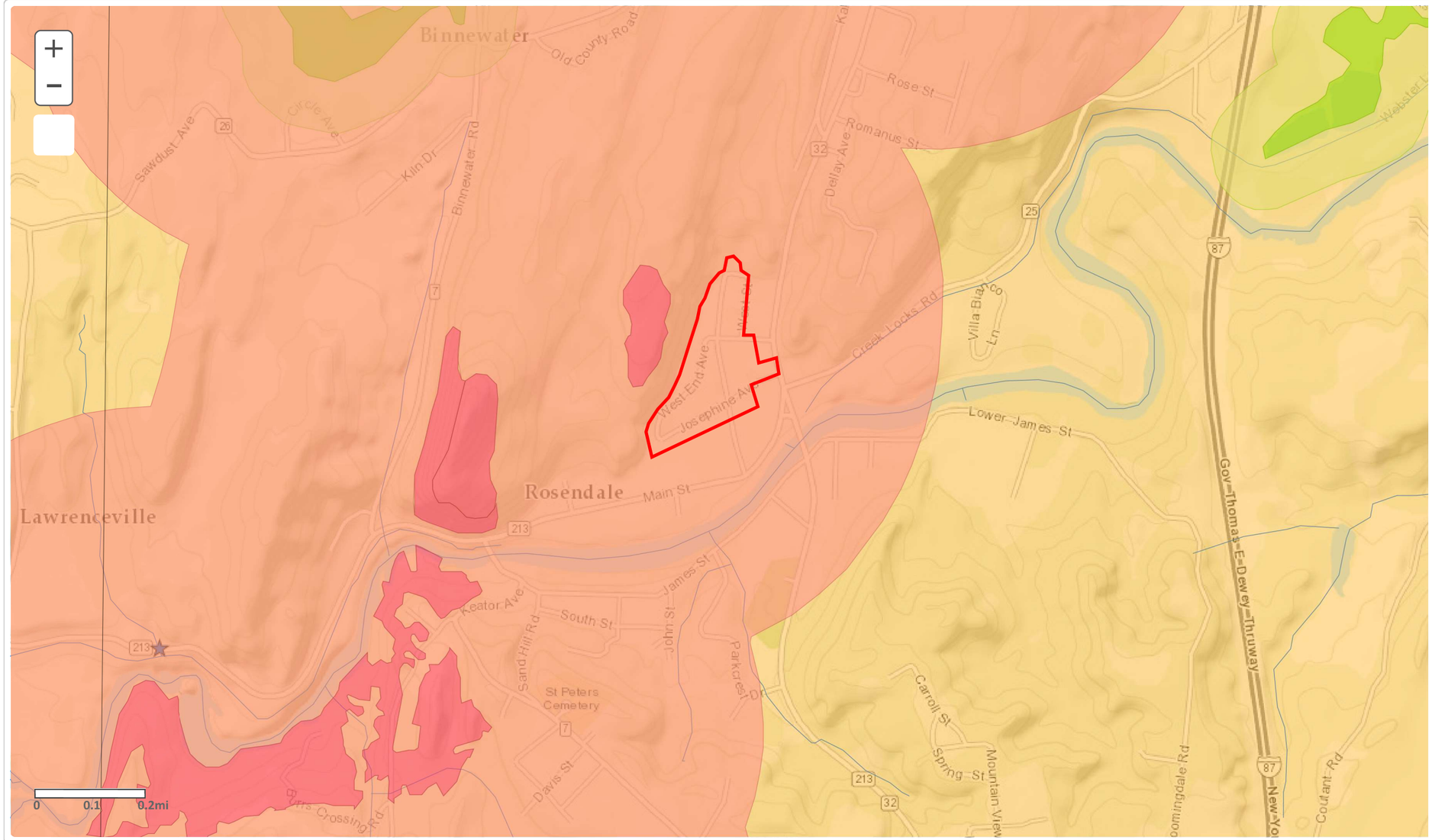
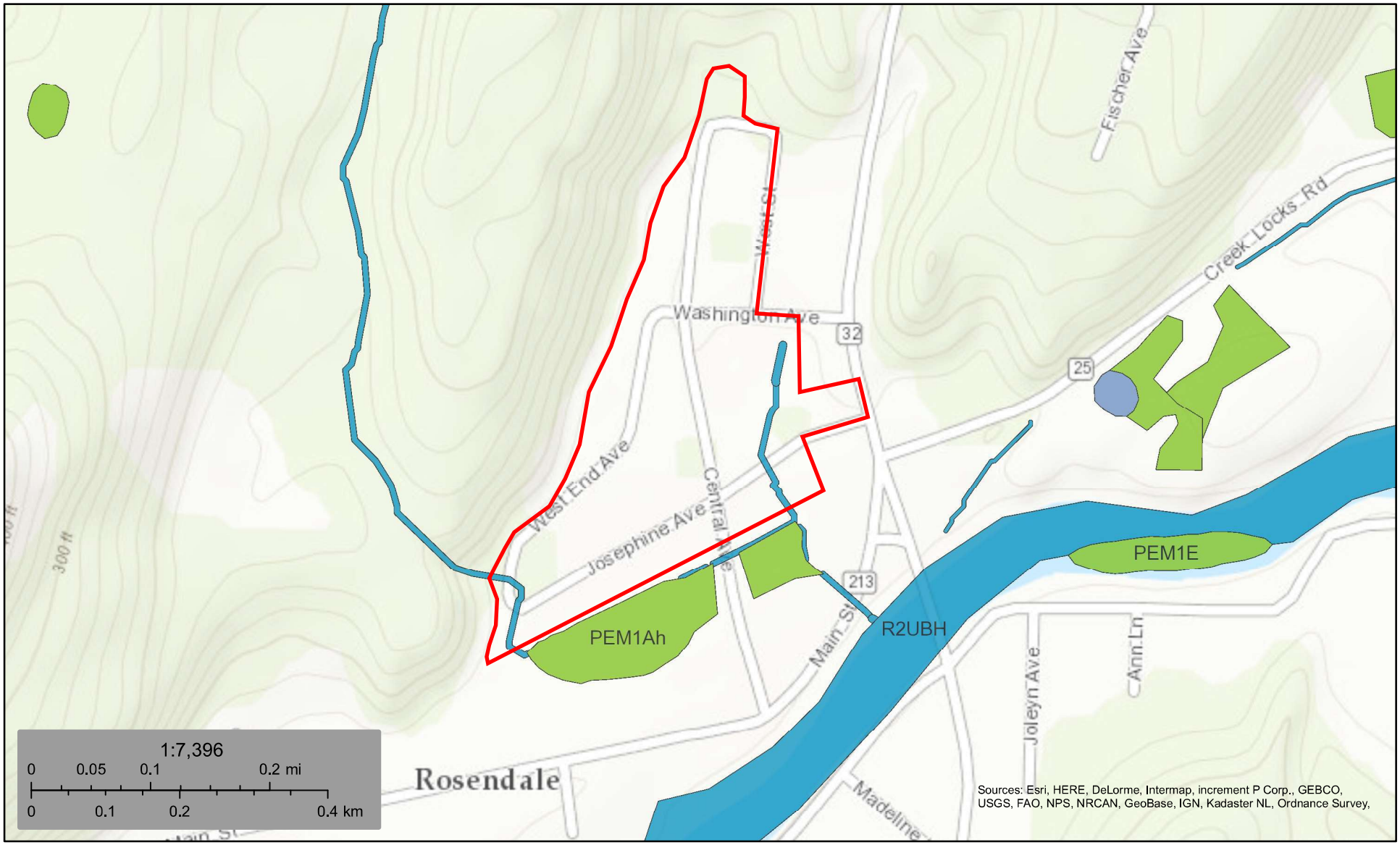
Contacts



U.S. Fish and Wildlife Service

National Wetlands Inventory

Washington Park Stormwater Mitigation



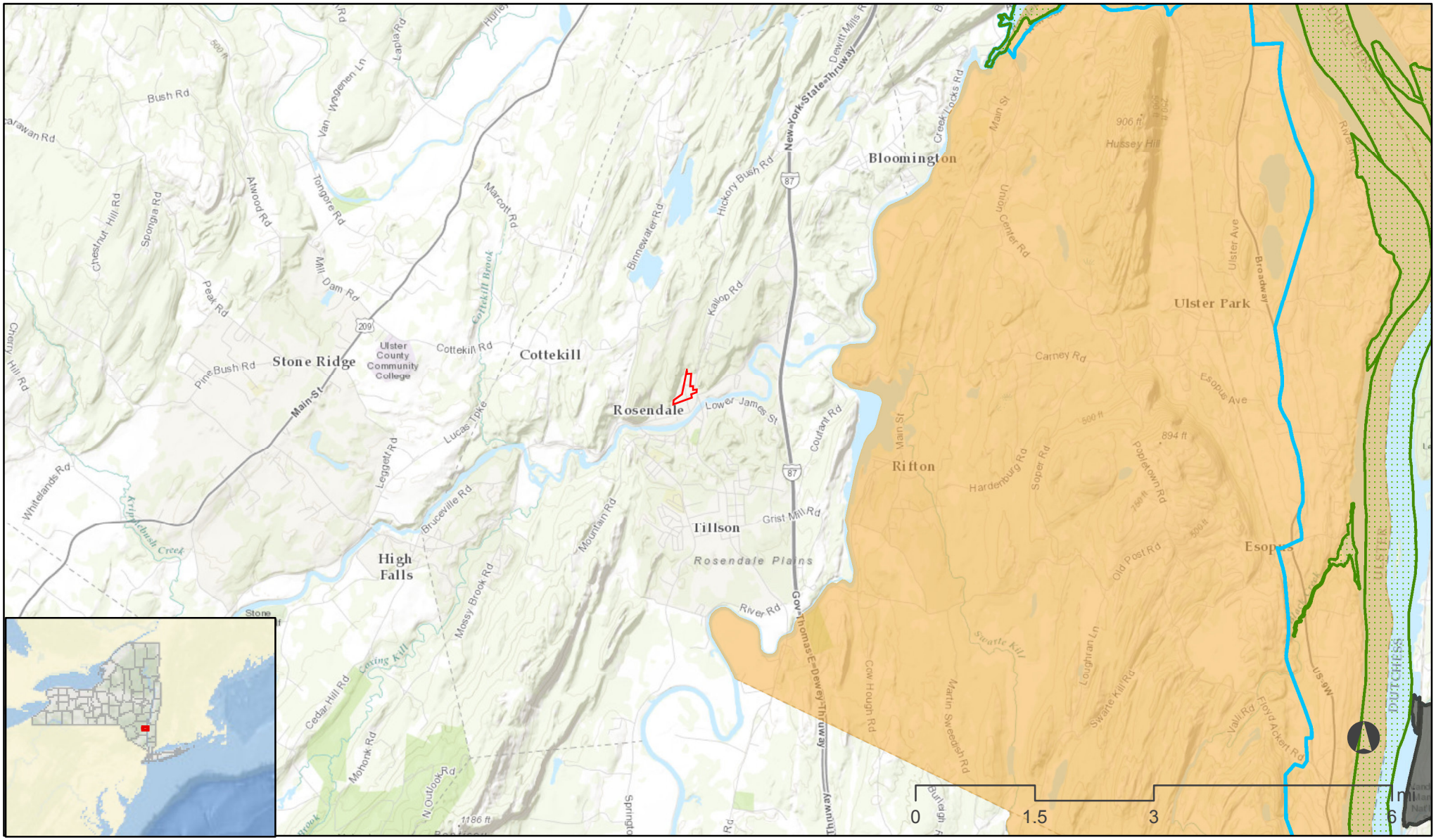
March 3, 2017

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Washington Park Stormwater Mitigation



Dredged Soil (DS)
Formerly Connected (FC)
Fresh Marsh (FM)
High Marsh (HM)
Intertidal Marsh (IM)
Littoral Zone (LZ)
Coastal Shoals, Bars and Mudflats (SM)
Tidal Wetlands Imagery
Significant coastal fish & wildlife habitats - NYS Dept of State
Coastal_Boundary_Polyline_update
Local Waterfront Revitalization Program [LWRP] Community Boundaries, Approved
NativeAmericanLands
FederalLands_NY

NEW YORK STATE OF OPPORTUNITY. Department of State

The New York Department of State (DOS) gives no warranty, expressed or implied, as to the accuracy, reliability, or completeness of data shown on this map product. DOS does not assume responsibility for the use or application of any information represented on this map nor responsibility for any error, omission or other discrepancy between the electronic and printed versions of documents.

Attachment 4

Floodplain Management (EO 11988) and Protection of Wetlands (EO 11990) Determination

<u>Washington Park Stormwater Mitigation Project</u>

EO 11988 Floodplain Management and EO 11990 Protection of Wetlands Determination

Community Reconstruction Program within NY State Community Development Block Grant Disaster Recovery Program

May 25, 2017

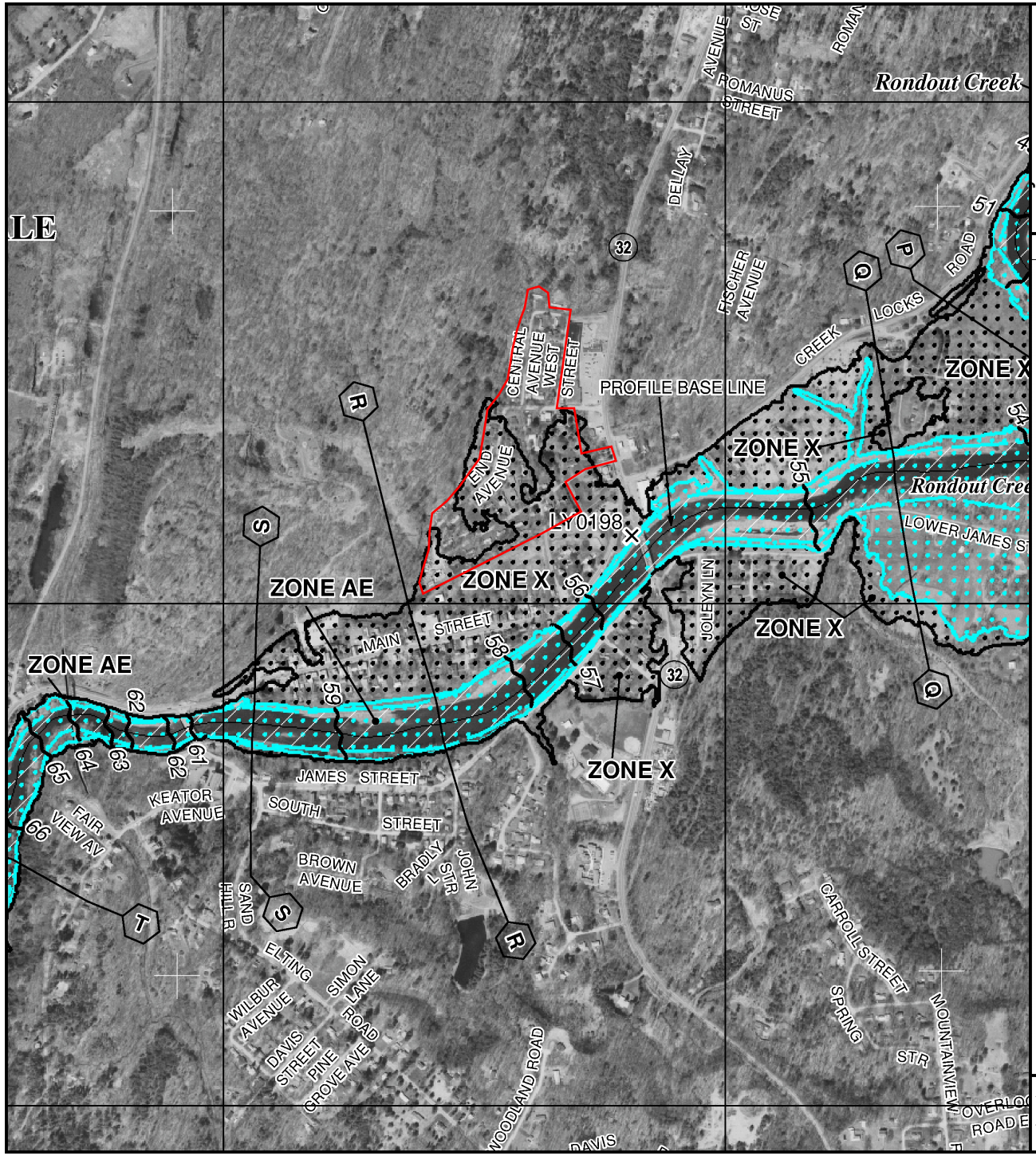
Overview - The proposed action does not occur in a floodplain or result in any new construction in a wetland as shown in **Appendix I** and **Appendix II**. Therefore, no further compliance with 24 CFR §55 – Floodplain Management and Protection of Wetlands is required. This project involves U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant – Disaster Recovery (CDBG-DR) program funding for the improvement of two defined drainageways that cross through the Washington Park neighborhood and construction of a pedestrian bridge.

Description of Proposed Action & Land Use – The Washington Park Stormwater Mitigation Project will be located in Washington Park neighborhood, Town of Rosendale, Ulster County, New York. The Washington Park neighborhood is located northwest of the intersection of New York State (NYS) Route 32 and NYS Route 213. This neighborhood has been subjected to historic, chronic flooding during large rain events. The proposed drainage improvements will effectively convey water during 50-year storm events and alleviate chronic flooding problems. The proposed funding involves a limited grant award of $1,137,000.00 for the installation of stormwater mitigation systems and a pedestrian bridge.

Applicable Regulatory Procedure Per EO 11988 – Based on online data, including data managed and updated by the U.S. Fish and Wildlife Service (USFWS) and New York State Department of Environmental Conservation (NYSDEC), there are no mapped wetlands in the proposed project area. According to 24 CFR §55.20(b)(11), wetlands are defined as "areas that are inundated by surface or ground water with a frequency sufficient to support, and under normal circumstances does or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction." The proposed action does not result in new construction in wetlands as defined in Executive Order 11990 (24 CFR §55.20(b)(8)). As such, no further compliance with 24 CFR §55 Floodplain Management and Protection of Wetlands is required.

Appendix 1

FEMA Firmette Maps



MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

M

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0605E

FIRM

FLOOD INSURANCE RATE MAP

ULSTER COUNTY, NEW YORK

(ALL JURISDICTIONS)

PANEL 605 OF 910

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ESOPUS, TOWN OF	360855	0605	E
MARBLETOWN, TOWN OF	361219	0605	E
ROSENDALE, TOWN OF	360862	0605	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
36111C0605E

EFFECTIVE DATE
SEPTEMBER 25, 2009

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

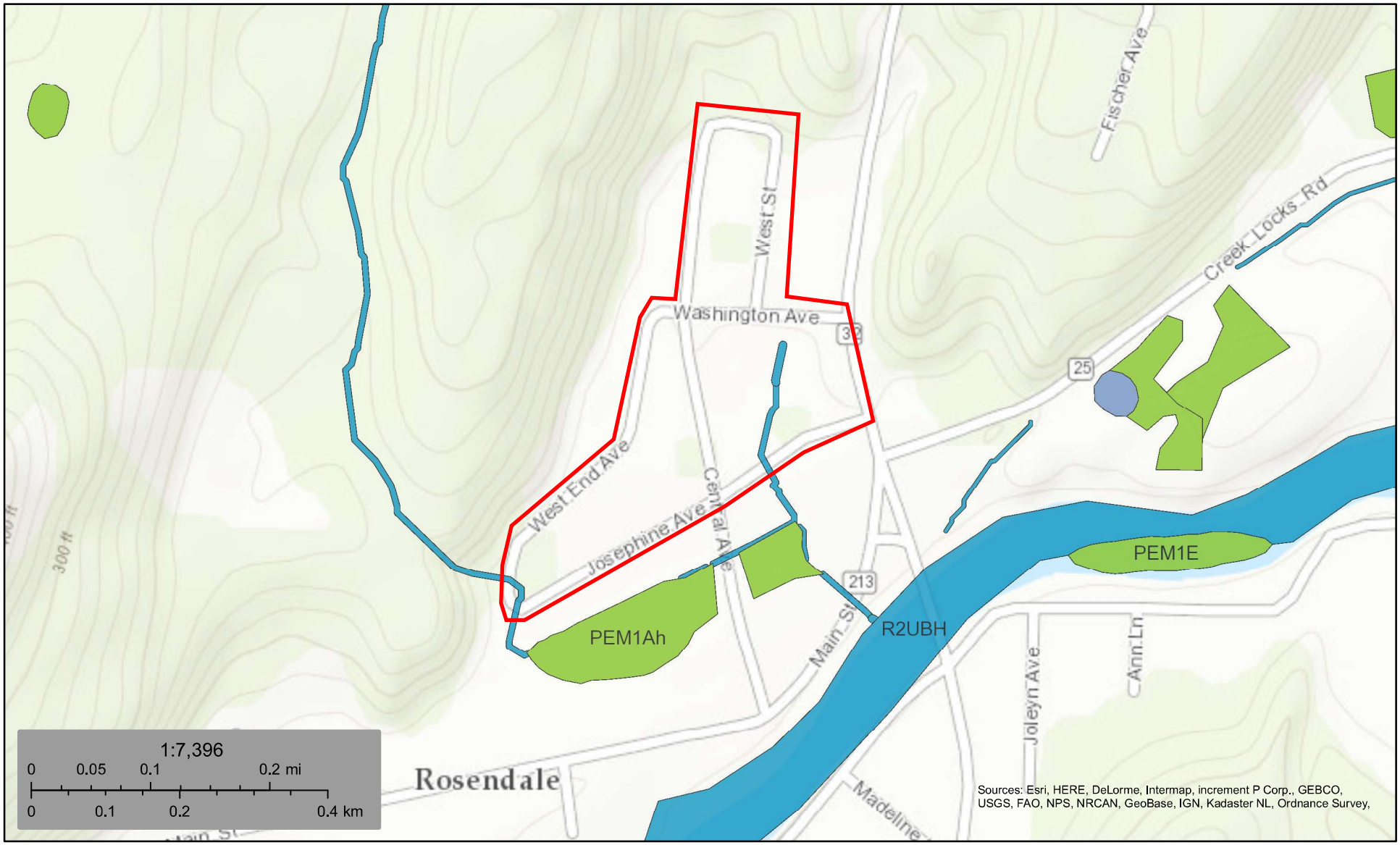
Appendix II

USFWS NWI Map

NYSDEC Environmental Resources Map

U.S. Fish and Wildlife Service
National Wetlands Inventory

Washington Park Stormwater Mitigation



March 3, 2017

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Environmental Resource Mapper

Base Map: Topographical

Search

Tools

Layers and Legend

- [x] **All Layers**
- [x] Unique Geological Features
- [x] Waterbody Classifications for Rivers/Streams
- [x] Waterbody Classifications for Lakes
- [x] State Regulated Freshwater Wetlands
  - State Regulated Wetland Checkzone
- [x] Significant Natural Communities
  - Natural Communities Near This Location
- [x] Rare Plants and Rare Animals

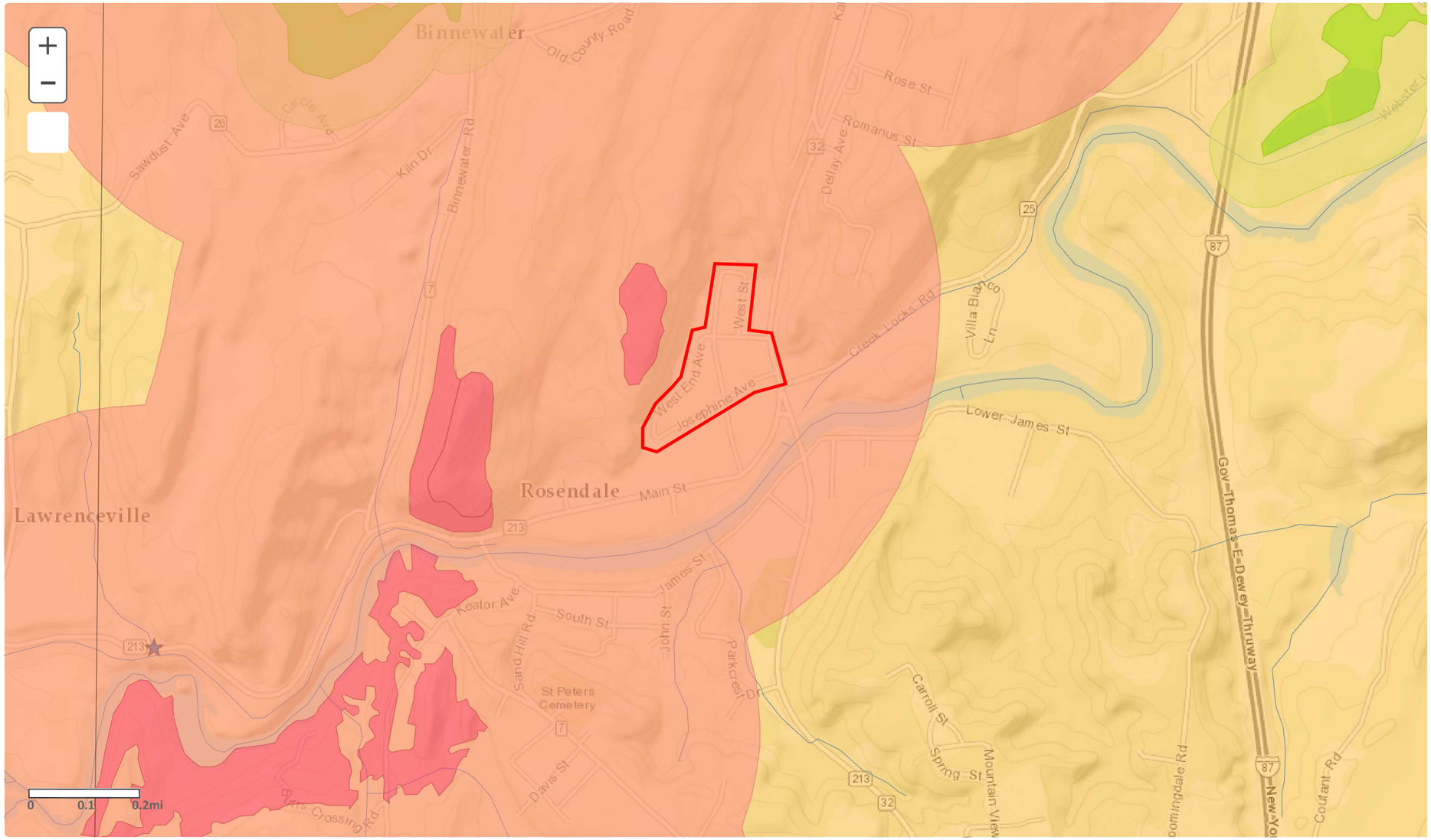
Other Wetland Layers

Reference Layers

Tell Me More...

Need A Permit?

Contacts



Environmental Resource Mapper

Base Map: Topographical

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- [ ] All Layers
- [x] Unique Geological Features
- [x] Waterbody Classifications for Rivers/Streams
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  - State Regulated Wetland Checkzone
- [x] Significant Natural Communities
  - Natural Communities Near This Location
- [ ] Rare Plants and Rare Animals

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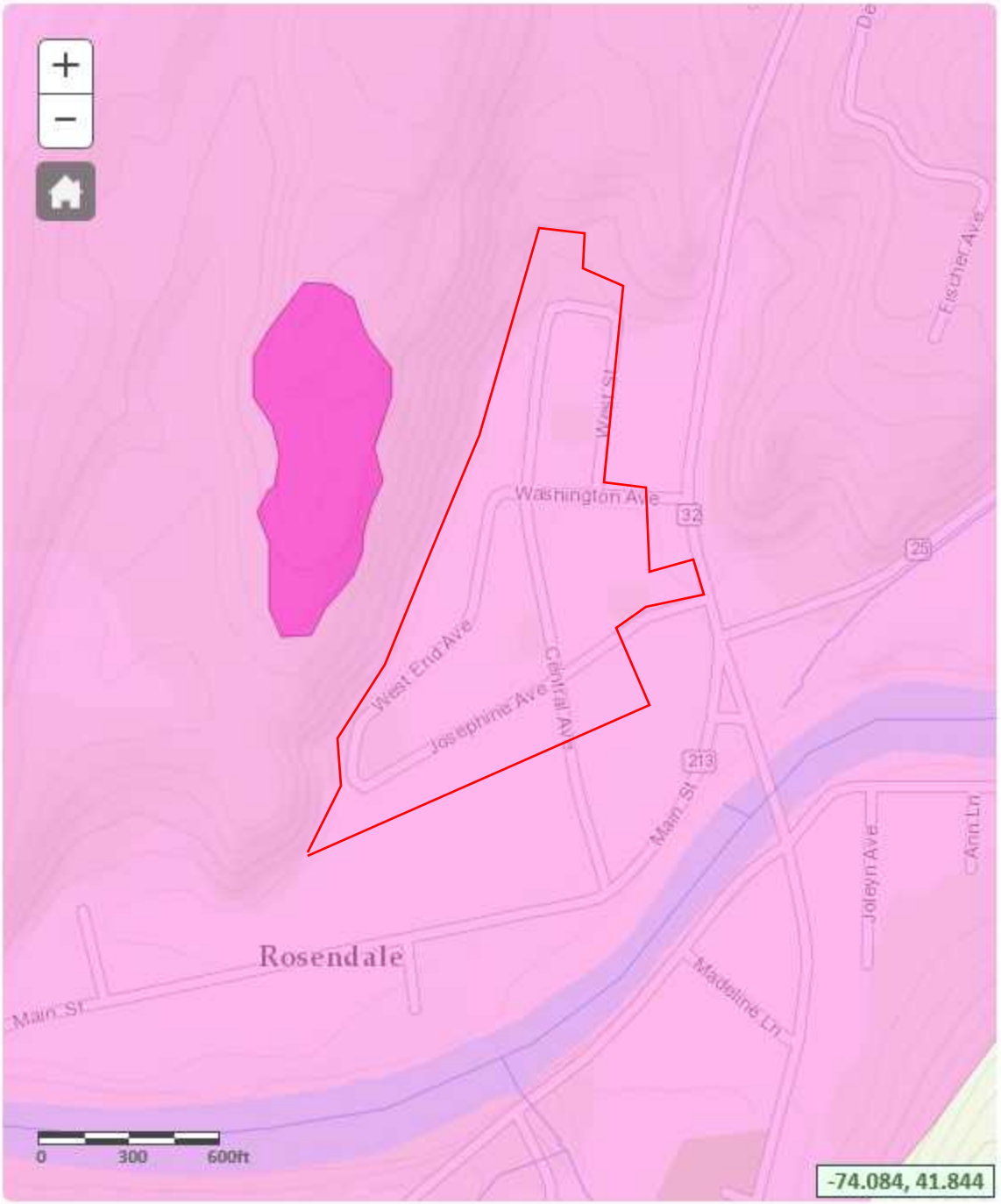

Environmental Resource Mapper

Base Map: Topographical

Search

Tools

Layers and Legend

- [ ] All Layers
- [x] Unique Geological Features
- [x] Waterbody Classifications for Rivers/Streams
- [x] Waterbody Classifications for Lakes
- [x] State Regulated Freshwater Wetlands
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- [ ] Significant Natural Communities
  - Natural Communities Near This Location
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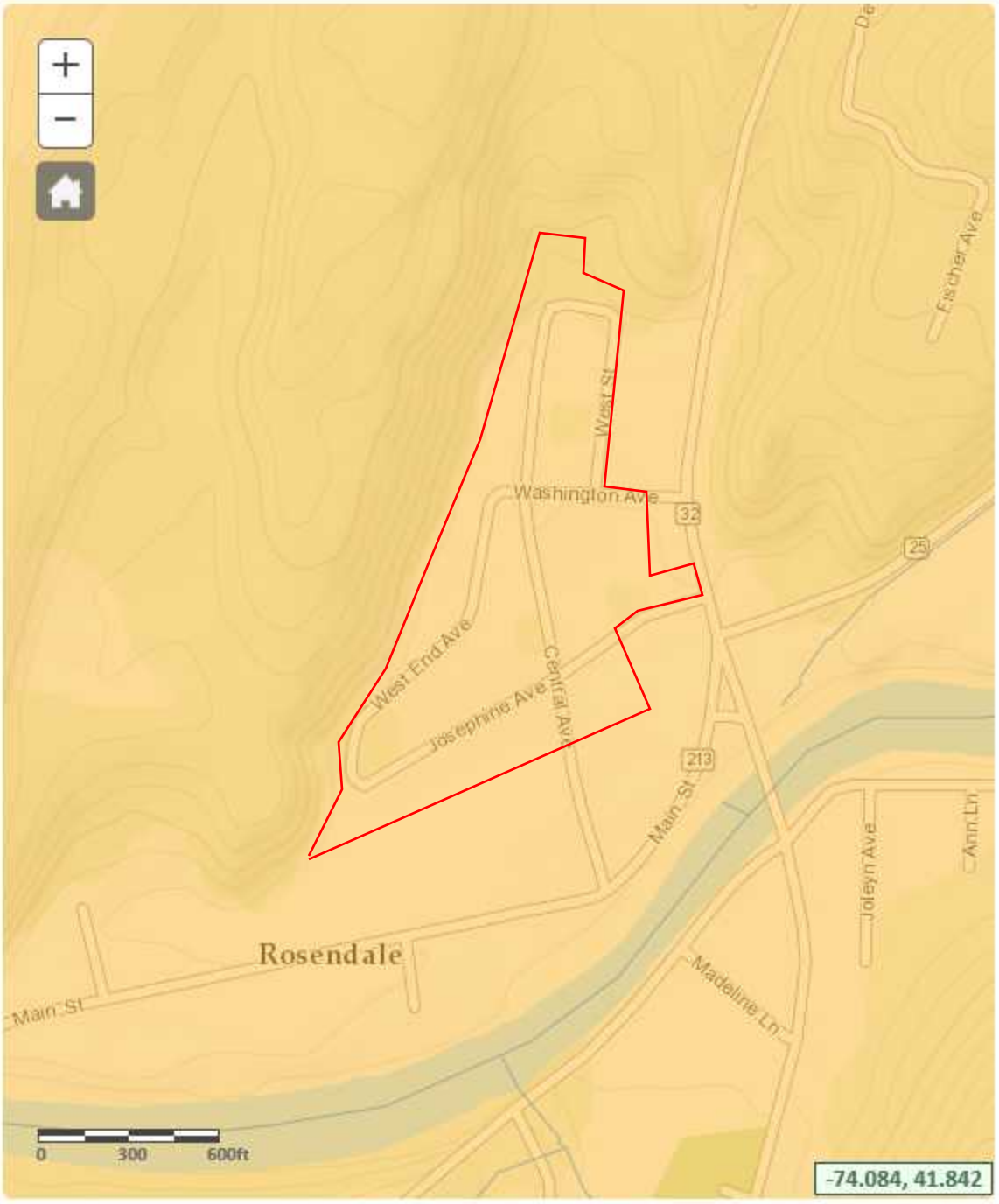


Attachment 5

HUD Environmental Standards Review

Washington Park Stormwater Mitigation Project
HUD Environmental Standards Review

Subject Property Address: Washington Park, Rosendale, New York 12472

Introduction

The purpose of this review is to ensure that the project complies with U.S. Department of Housing and Urban Development (HUD) environmental standards in relation to 24 CFR Part 58.5. Properties that are proposed for use in HUD programs "must be free of hazardous materials, contamination, toxic chemicals and gases, and radioactive substances, where a hazard could affect the health and safety of occupants or conflict with the intended utilization of the property."

A desktop review was performed to identify whether the Subject Property referenced in the title of this document complies with the following criteria:

(i) is not Listed on an U.S. Environmental Protection Agency (EPA) Superfund National Priorities or Comprehensive Environmental Response Superfund National Priorities or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) List, or equivalent State list;
(ii) is not located within 3,000 feet of a toxic or solid waste landfill site;
(iii) does not have an underground storage tank; and
(iv) is not known or suspected to be contaminated by toxic chemicals or radioactive materials.

Summary of Findings

Records Review for the Subject Property

Subject Property Description:

This environmental review was completed for the Washington Park Stormwater Mitigation Project in Rosendale, New York. The proposed project consists of installation of stormwater mitigation systems and a pedestrian bridge within the Washington Park neighborhood, and no occupied structures are proposed. The proposed project site, herein referred to as the Subject Property and as shown on project maps, spans parts of Washington Avenue, Central Avenue, Josephine Avenue, West End Avenue, West Street, and Hillside Avenue.

County Records:

The Subject Property is not located within 3,000 feet of a toxic or solid waste landfill site.

EPA Records:

The Subject Property is not listed on an EPA Superfund National Priorities or CERCLA list or equivalent State list. A review of the EPA Facilities Database provides no indication of past uses of the Subject Property that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property.

New York State Department of Environmental Conservation (NYSDEC) Records:

According to the NYSDEC Spill Incidents Database, there have been three spills reported on the Subject Property. These three spills have been closed by the NYSDEC:

1) **Spill report #0509479** occurred at 15 Washington Ave in November 2005. The spill involved five gallons of no. 2 fuel oil released onto site soils due to a tank overfill at a private dwelling. The spill was closed by the NYSDEC in February 2006.

2) **Spill report #9712709** occurred at 19 West St in February 1998. The spill involved an unknown amount of waste oil released onto site soils. The spill was closed by the NYSDEC in February 1998.
3) **Spill report #0609186** occurred at 22 West End Ave in November 2006. The spill involved one gallons of kerosene released onto site soils. The spill was closed by the NYSDEC in May 2010.

A spill closure by the NYSDEC indicates that the records and data submitted for the spill demonstrated that the necessary cleanup and removal actions have been completed and no further remedial actions are necessary under these spill reports. As such, these spills are not considered a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property.

The Subject Property is not listed in the Environmental Site Remediation or Bulk Storage Databases.

Records Review for the Surrounding Properties

EPA Records:

There are 12 EPA-permitted hazardous waste, air emissions, and water discharger facilities located within 3,000 feet of the Subject Property. Of the 12 facilities, 11 are located across Rondout Creek, or have no violations reported at the facility. Facilities with no permit violations are not considered a hazard because the facilities are in compliance with permit conditions that are enforced and meet standards that protect public health and the environment by preventing releases to the environment. As such, these 11 facilities are not considered a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property. One facility with violations and that is in non-compliance of permit conditions is identified below. The facility is determined NOT to pose a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property because hazardous substances have NOT been released from the facility as documented below.

Rosendale WWT Facility holds a National Pollution Discharge Elimination System (NPDES) permit for the discharge of treated wastewater from the Town of Rosendale. The treatment plant is located approximately 1,050 feet east of the Subject Property. The plant is currently in non-compliance of the Clean Water Act (CWA) and has been for the eight inconsecutive quarters. One of the quarters was spent in significant violation of the CWA due to pollutant violations with settleable solid and coliform exceedances. The remaining seven quarters were in non-compliance due to pollutant exceedances of Biological Oxygen Demand (BOD), chlorine, coliform, settleable solids, suspended solids, and pH. No hazardous substances are known to have been released to the environment from the plant.

NYSDEC Records:

A review of the NYSDEC Environmental Site Remediation, Bulk Storage, and Spill Incidents Databases and resulted in the identification of: 29 spills located on properties within 1,000 feet of the Subject Property, seven bulk storage sites within 3,000 of the Subject Property, and two Environmental Remediation Sites within 3,000 feet of the Subject Property.

Of the 29 spills identified within 1,000 feet of the Subject Property, 28 have been closed by the NYSDEC. A spill closure by the NYSDEC indicates that the records and data submitted for the spill demonstrated that the necessary cleanup and removal actions have been completed and no further remedial actions are necessary under these spill reports. As such, these 28 spills are not considered a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property. One spill has not yet been closed by the NYSDEC is described briefly below.

Spill report #0107420 occurred at 1146 Rt 32 in October 2001. The spill site is located directly across Route 32, approximately 365 feet east of the proposed work on the Subject Property. The spill involved and unknown amount of gasoline released onto site soils. This spill is associated with a petroleum bulk

storage site (PBS) **#3-037478**. While this open spill does constitute a potential hazardous condition for sites located down-gradient, the Subject Property is located cross-gradient. As such, this site is not considered a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property.

The following seven Bulk Storage Sites were identified within the NYSDEC Bulk Storage Database.

1. **Rosendale Recreation Center (3-000287)** is an unregulated/closed PBS site located approximately 1,500 feet south of the Subject Property. One tank record was identified for the site, an 800-gallon aboveground tank which was closed in place. No spills were reported at this site.
2. **Rosendale Sunoco (3-333867)**, also known as **Sun Conure Petroleum, Inc.**, is an active PBS site located approximately 140 feet east of the Subject Property. Nine tank records were identified for this site; four of the tanks have been closed and removed from the Subject Property. The remaining five tanks are listed as in-service: 1) one 280-gallon aboveground no. 2 fuel oil tank (installed 03/1998); 2) one 6,000-gallon underground diesel tank (installed 12/2015); 3) one 10,000-gallon underground gasoline/ethanol tank (installed 11/2015); 4) one 6,000-gallon underground gasoline/ethanol tank (installed 11/2015); and 5) one 4,000-gallon underground gasoline/ethanol tank (installed 11/2015). One spill was reported on this site; however, it has been closed by the NYSDEC.
3. **Stewart's Shop #177 (3-171506)** is an active PBS site that is located approximately 130 feet south of the Subject Property. Nine tank records were identified for the site; seven of the tanks have been closed and removed from the site. The remaining two tanks are listed as in-service: 1) one 12,000-gallon underground gasoline/ethanol tank (installed 06/2007); and 2) one 6,000-gallon underground gasoline tank (installed 06/2007). Four spill records were reported on this site; however, they were all closed by the NYSDEC.
4. **Park Heights Project (3-601354)** is an active PBS site located approximately 2,200 feet south of the Subject Property. One tank record was identified for the site: one 2,500-gallon underground no. 2 fuel oil tank (installed 04/1999). The tank is currently still in service on the site. No spills were reported on the site.
5. **St. Peters Church (3-058165)** is an unregulated/closed PBS site located approximately 2,990 feet southwest of the Subject Property. The bulk storage permit for this site expired in 2011. Fourteen tank records were identified for the site; six of the tanks were closed and removed from the site while one tank was closed in place. The remaining seven tanks are listed as in-service: 1) two 275-gallon aboveground no. 2 fuel oil tanks (installed 02/2010); 2) two 330-gallon aboveground no. 2 fuel oil tanks (installed 12/2011); 3) 275-gallon aboveground no. 2 fuel oil tank (installed 04/2012); and 4) two 275-gallon aboveground no. 2 fuel oil tanks (installed 05/2006). Two spills were reported on the site; however, both spills were closed by the NYSDEC.
6. **Azam & Sons (3-168874)** is an active PBS site located approximately 1,160 feet south of the Subject Property. Fourteen tanks were identified for this site; six of the tanks have been closed and removed from the site. The remaining eight tanks are listed as in-service: 1) one 8,000-gallon underground gasoline/ethanol tank (installed 07/1994); 2) one 6,000-gallon underground gasoline/ethanol tank (installed 07/1994): 3) one 4,000-gallon underground biodiesel tank (installed 01/1994); 4) one 2,000-gallon underground kerosene tank (installed 01/1994); 5) one 1,000-gallon aboveground kerosene tank (installed 07/1994); 6) one 275-gallon aboveground no. 2 fuel oil tank (installed 06/2007); 7) one 1,000-gallon aboveground kerosene tank (installed 01/2004); and 8) one 1,000-gallon underground no. 2 fuel oil tank (installed 01/2004). Three spills were reported on this site; one of the spills was closed by the NYSDEC and two remain open. The first spill, report #9008718, occurred in November 1990 at the corner of Madeline Lane and Route 32 approximately 400 feet south of the Subject Property. The spill involved an unknown amount of methyl-tert-butyl ether (MTBE) and gasoline released into the groundwater.

The spill is associated with a gasoline station (Citgo) which is registered as a PBS site under PBS #3-168874. The second spill, report # 0510696, occurred in December 2005 and involved an unknown amount of waste oil/used oil released into the soil and groundwater due to an equipment failure. This site is hydraulically separated by Roundot Creek from the Subject Property and is not a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property.

7. **Aero Star Petroleum, Inc. (3-037478)** is an active PBS site located approximately 380 feet east of the Subject Property. Six tank records were identified for the site; three of the tanks have been closed and removed from the site. The three remaining tanks are listed as in-service: 1) two 12,000-gallon underground gasoline/ethanol tanks (installed 07/2007); and 2) one 8,000-gallon underground gasoline/ethanol tank (installed 07/2007). Eleven spills have been reported on the site; ten of the reported spills were closed by the NYSDEC. One remaining spill is identified above as an open spill within 1,000 feet of the Subject Property, **spill report #0107420**. This open spill is discussed in detail above. This facility is located cross-gradient from the Subject Property. As such, this site is not considered a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property

Spills reported at Bulk Storage sites were investigated to determine if they were still currently open by the NYSDEC. If a spill was closed by the NYSDEC, then the records and the data submitted indicate that necessary cleanup and removal actions have been completed and no further remedial actions are necessary or the case was closed for administrative reasons (e.g. multiple reports of a single spill consolidated into a single spill number). If the case has been administratively closed and did not meet NYSDEC closure criteria, then another spill report number would have been identified covering the case. The registered tanks are permitted and regulated by NYSDEC which requires leak detection, containment and monitoring. Any site that has registered tanks and no reported or closed spills is not a hazard to the Subject Property.

Two Environmental Remediation sites were identified within 3,000 feet of the Subject Property and are briefly discussed below:

1083 Route 32 (356031) is a State Superfund site located approximately 1,160 feet south of the Subject Property. This site operated as a chemical company which dyed clothing from 1960 to 1970. It then operated as a garage from 1970 to 1979 and has since been used as a gas station (Citgo). Primary contaminants of concern at the site include volatile organic compounds (VOCs), specifically tetrachloroethene (PCE), cis-1,2 dichloroethene (DCE) and vinyl chloride. This contamination has been attributed to the nearby **Rosendale Cleaners site (ID No. 356050)**. Rosendale Cleaners site is also a State Superfund site located adjacent to the 1083 Route 32 site, approximately 1,100 feet south of the Subject Property. The site has been used for a variety of commercial purposes since at least the mid-1900s. A dry cleaner reportedly operated on the site until the business burned down in 1981. A mound of soil/debris pile exists on the southern part of the site. The mound is approximately 3’ above grade, approximately 30’ in diameter, and buried approximately 7’ deep. Per sampling, the debris consisted of scraps of metal, cinder block, glass, wooden beams, and textiles. These are likely related to demolition actions taken after a fire at the former dry cleaner building. Primary contaminants of concern are the same as at the 1083 Route 32 site. Contamination is present in on-site and off-site monitoring wells. Overburden groundwater exceeds standards for PCE, TCE, 1,2- DCE and vinyl chloride at maximum concentrations of 320, 360, 8,000 and 1,100 ug/L, respectively.

A Remedial Investigation was completed at the sites, which included investigation on the spill at the Citgo gas station (#9008718). Sub-slab vapor samples were taken at five different structures located down-gradient from the debris mound. Methylene chloride, Perchloroethylene (PCE), and

Trichloroethylene (TCE) were not detected at any concentrations above the Air Guideline Values (AGVs) in any of the sub-slab vapor, indoor air, or ambient air samples.

Groundwater samples were collected from monitoring wells during two sampling events performed in January 2013 and April 2013. Results indicate that Several petroleum related VOCs (i.e., 1,2,4-trimethylbenzene, benzene, n-butylbenzene, chlorobenzene, ethylbenzene, isopropylbenzene, methyl tert-butyl ether, n-propylbenzene, toluene, m & p-xylenes, and o-xylene) were detected at concentrations above Class GA Values in groundwater samples collected from sampling points on the 1083 Route 32 property. Chlorinated VOCs were detected above Class GA Values in groundwater collected from sampling points on the Citgo Gas Station property and former dry cleaner property as well as downgradient portions of the Site Investigation Area. These sites are not considered a hazard to the Subject Property due to their distance from the Subject Property and location across Rondout Creek, which acts as a hydraulic barrier. Additionally, the proposed project consists of installation of a stormwater mitigation systems and a pedestrian bridge, and no occupied structures are proposed.

In Summary:

Based on a review of available environmental records for the Subject Property and surrounding area, the Subject Property is unlikely to contain hazardous materials, contamination, toxic chemicals and gases, or radioactive substances, which would constitute a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property. The proposed project consists of installation of a stormwater mitigation systems and a pedestrian bridge, and no occupied structures are proposed. The pedestrian bridge will be used for recreational activities. Therefore, a Phase I Environmental Site Assessment (ESA) or Phase II Investigation is not warranted. Maps, NYSDEC reports, and EPA reports are included at the end of this report.

Data Sources:

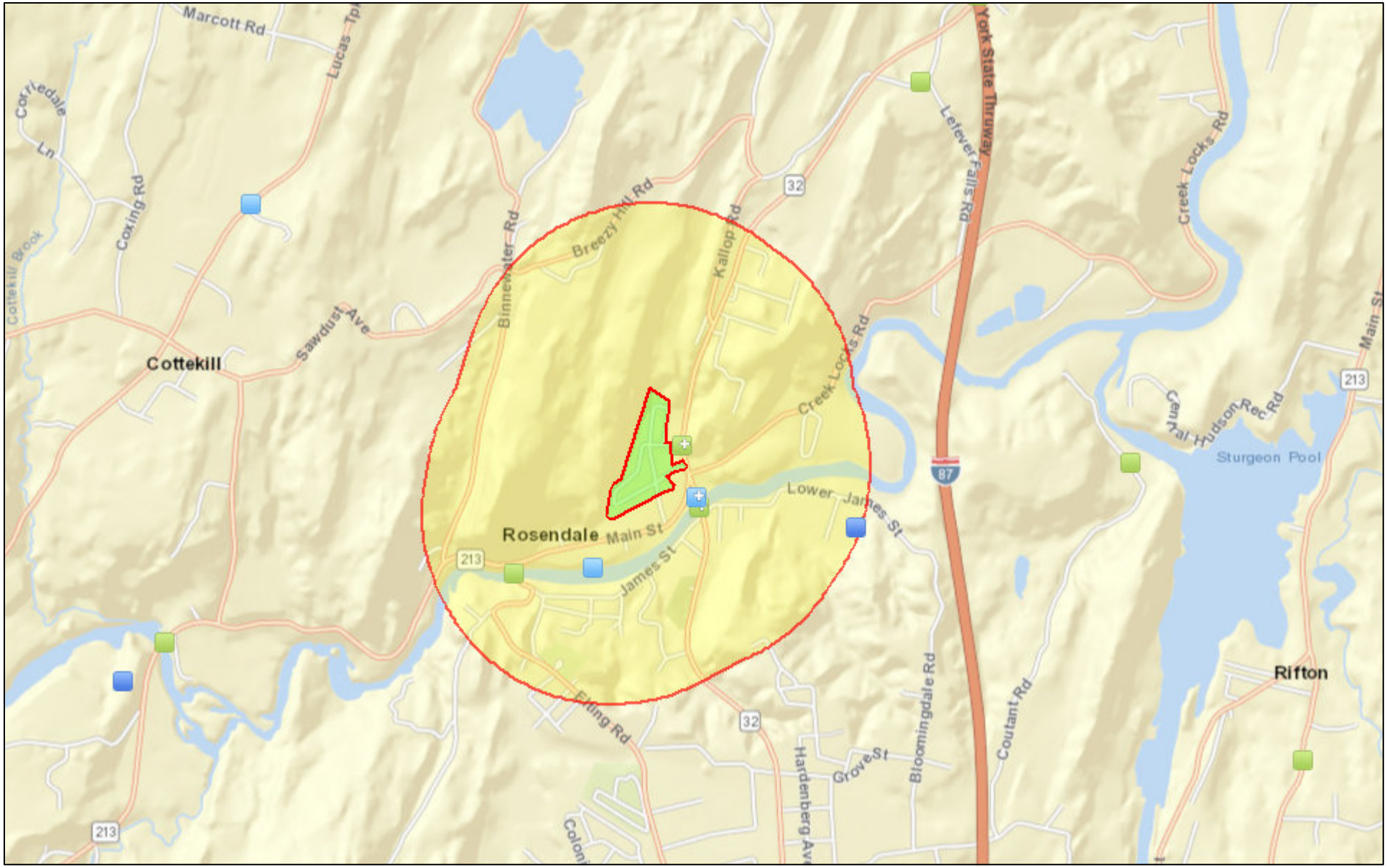
Tectonic Engineering and Surveying Consultants, P.C. (Tectonic) has reviewed the following sources to make the above determinations: Hazardous Waste records contained in the RCRA, the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) for sites listed under the CERCLA (otherwise known as Superfund), EPA's Toxic Release Inventory Database (TRI), and the EPA Radiation Information Database (RADInfo).

Tectonic reviewed the NYSDEC Remedial Site Database to assess whether the site is registered as a NYS Superfund or Environmental Restoration site. The NYSDEC Environmental Site Remediation Database includes records of sites that are part of the NYS Superfund, Brownfield Cleanup, Environmental Restoration, and Voluntary Cleanup Programs. The Database also includes a Registry of Inactive Hazardous Waste Disposal Sites.

The NYSDEC Bulk Storage Database was reviewed for records of facilities that are or have been regulated according to one of the Bulk Storage Programs - Chemical Bulk Storage or Major Oil Facility. The NYSDEC Spill Incidents Database was used to determine the potential effects of spills on or near the Subject Property. A desktop review of Google Earth was used in conjunction with a map of active municipal landfills (provided by the NYSDEC) in determining whether there was a landfill within 3,000 feet of the Subject Property.

Maps

Washington Park Stormwater Mitigation Project



January 11, 2017

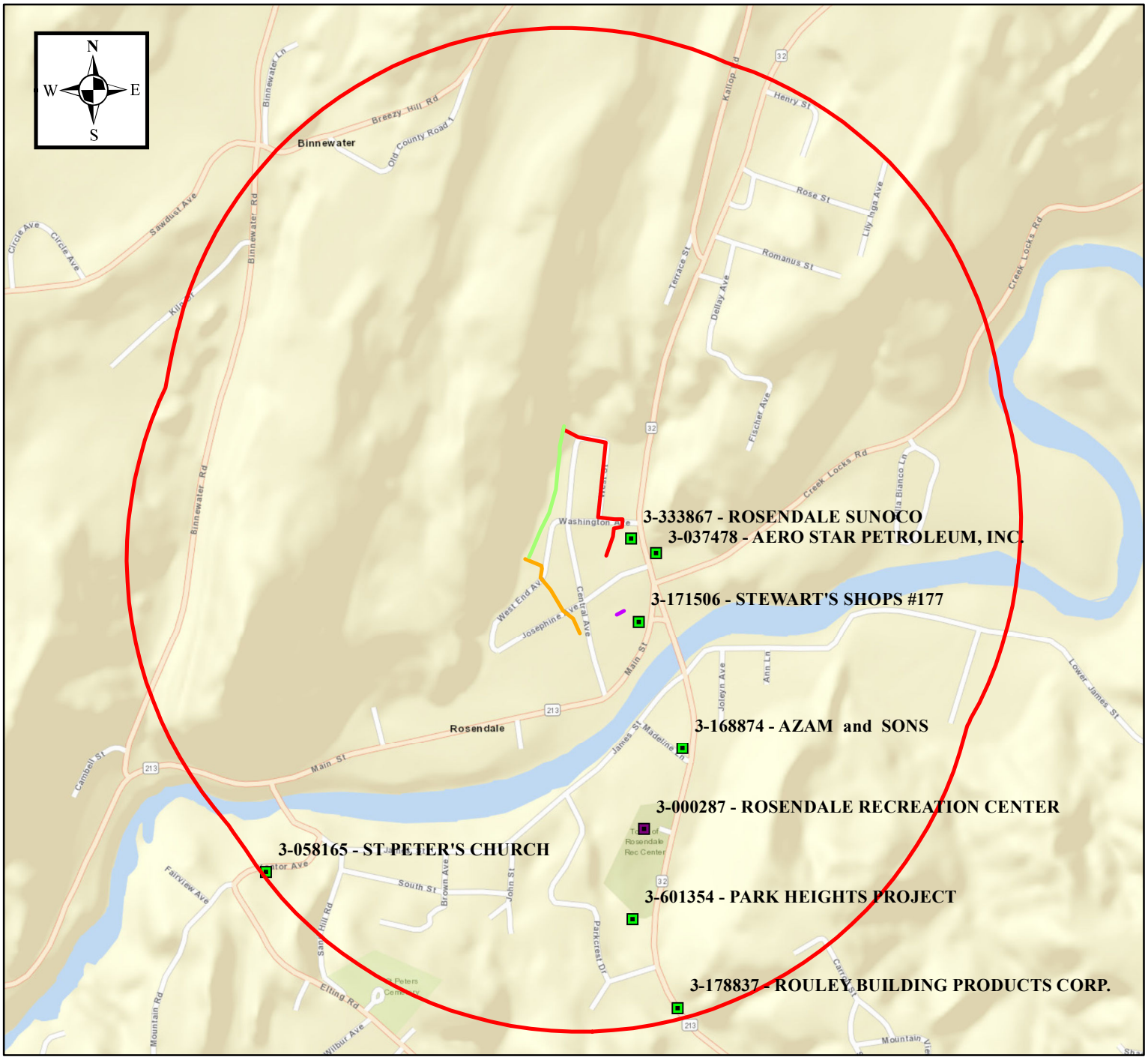
- PCS (clustered)
- PCS (single)
- AIRS (single)
- RCRAINFO (clustered)
- RCRAINFO (single)
- Project 1
- Buffer Area

1:36,112

0 0.3 0.6 1.2 mi

0 0.5 1 2 km

Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),



TECTONIC

Practical Solutions, Exceptional Service

0 500 1,000 2,000 Feet

1:13,000

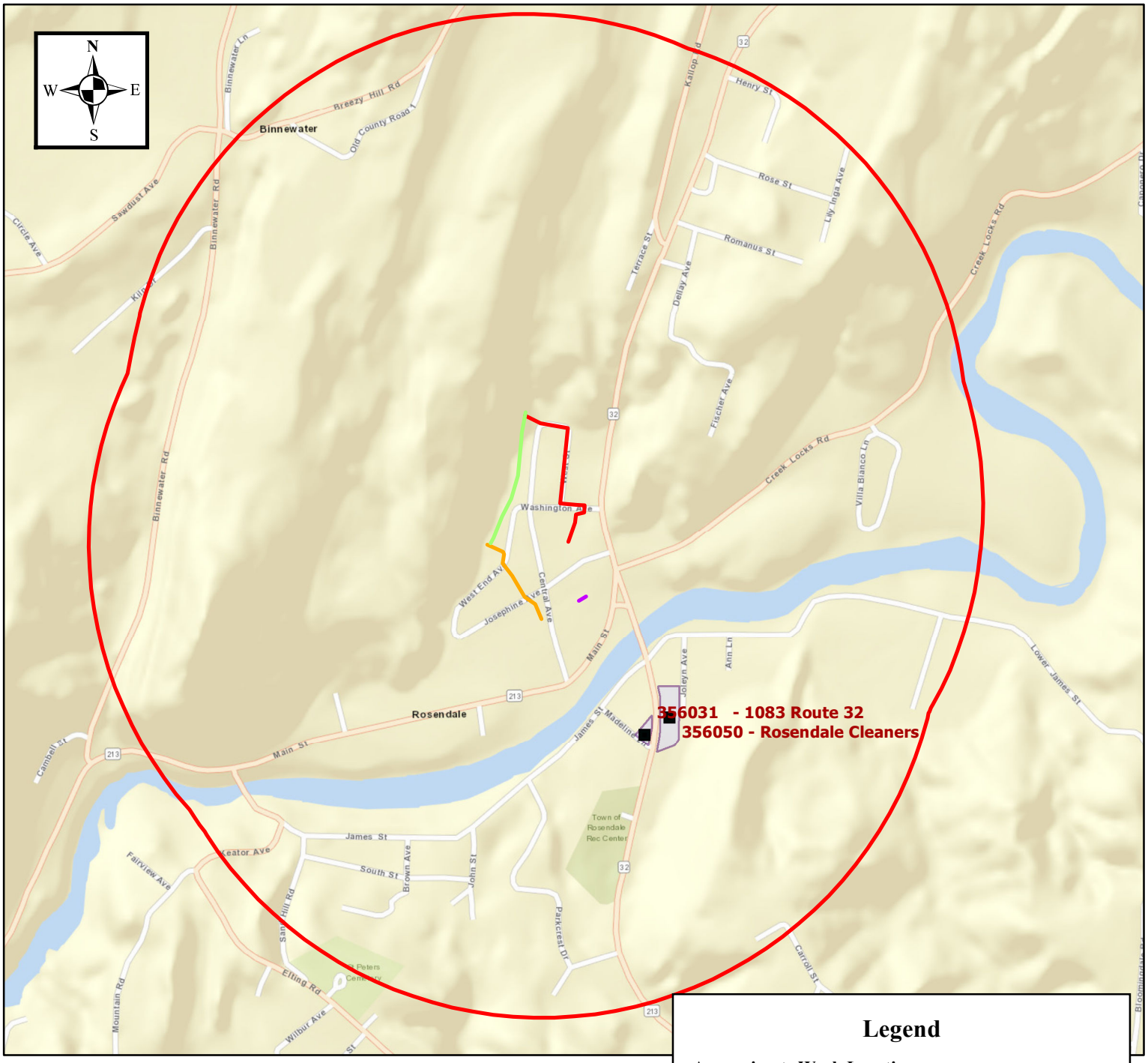
Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

Created: 5/16/2017
Source data: Environmental remediation sites listed in the NYSDEC Environmental Remediation Database. Properties listed on the NYSDEC Bulk Storage Database. Solid waste landfill information provide by NYSDEC.

Legend

Approximate Work Locations

- Eastern Drainage System
- Mountain Swale
- Western Drainage System
- Pedestrian Bridge
- Approximate Work Locations (3,000 ft Buffer)
- Chemical Bulk Storage
- Petroleum Bulk Storage
- Major Oil Storage



TECTONIC

Practical Solutions, Exceptional Service

0 500 1,000 2,000 Feet

1:13,000

Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

Created: 5/16/2017
Source data: Environmental remediation sites listed in the NYSDEC Environmental Remediation Database. Properties listed on the NYSDEC Bulk Storage Database. Solid waste landfill information provide by NYSDEC.

Legend

Approximate Work Locations

- Eastern Drainage System
- Mountain Swale
- Western Drainage System
- Pedestrian Bridge
- Approximate Work Locations (3,000 ft Buffer)
- NYS Superfund
- Brownfield Cleanup
- Environmental Restoration
- Voluntary Cleanup
- EPA RCRA
- NYSDEC Environmental Site Borders

U.S. EPA Reports for Properties Contiguous to the Subject Property

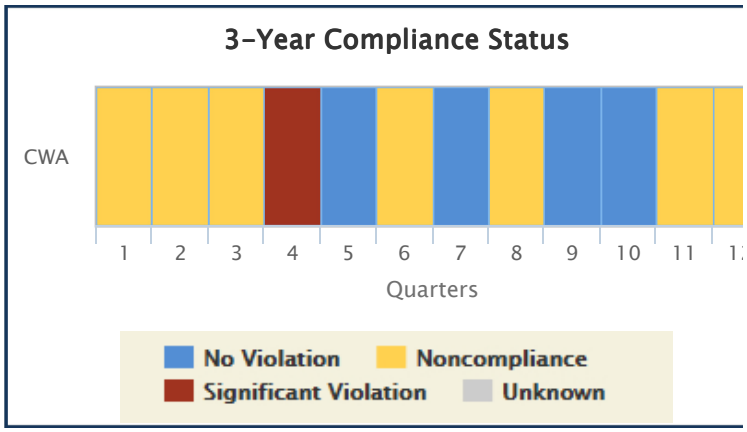
Detailed Facility Report

Facility Summary

ROSENDALE WWT FACILITY

136 CREEK LOCKS RD, ROSENDALE, NY 12472

FRS (Facility Registry Service) ID: 110019474040
EPA Region: 02
Latitude: 41.847083
Longitude: -74.072139
Locational Data Source: NPDES
Industry: Sewerage Systems
Indian Country: N



Enforcement and Compliance Summary

Statute	Insp (5 Years)	Date of Last Inspection	Compliance Status	Qtrs in NC (Non-Compliance) (of 12)	Qtrs in Significant Violation	Informal Enforcement Actions (5 years)	Formal Enforcement Actions (5 years)	Penalties from Formal Enforcement Actions (5 years)	EPA Cases (5 years)	Penalties from EPA Cases (5 years)
CWA	5	09/23/2016	**Noncompliance**	9	1	--	--	--	--	--

Related Reports

- CWA Pollutant Loading Report
- CWA Effluent Charts

Regulatory Information

Clean Air Act (CAA): No Information
Clean Water Act (CWA): Minor, Permit Effective (NY0109061)
Resource Conservation and Recovery Act (RCRA): No Information
Safe Drinking Water Act (SDWA): No Information

Other Regulatory Reports

Air Emissions Inventory (EIS): No Information
Greenhouse Gas Emissions (eGGRT): No Information
Toxic Releases (TRI): No Information

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		110019474040					N	41.847083	-74.072139
ICP	CWA	NY0109061	Minor: NPDES Individual Permit	Effective	POTW	04/30/2021	N	41.847528	-74.072306

Facility Address

System	Statute	Identifier	Facility Name	Facility Address
FRS		110019474040	ROSENDALE WWT FACILITY	136 CREEK LOCKS RD, ROSENDALE, NY 12472
ICP	CWA	NY0109061	ROSENDALE (T) STP	136 CREEK LOCKS RD, ROSENDALE, NY 12472

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Desc
ICP	NY0109061	4952	Sewerage Systems

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description
No data records returned			

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)
No data records returned			

Enforcement and Compliance

Compliance Monitoring History (5 years)

Statute	Source ID	System	Inspection Type	Lead Agency	Date	Finding
CWA	NY0109061	ICP	Evaluation	EPA	09/23/2016	
CWA	NY0109061	ICP	Evaluation	State	10/20/2015	
CWA	NY0109061	ICP	Evaluation	State	08/06/2014	
CWA	NY0109061	ICP	Evaluation	State	03/24/2014	
CWA	NY0109061	ICP	Evaluation	State	03/07/2012	

Entries in italics are not considered inspections in official counts.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Non-compliance)/HPV (High Priority Violation)	Description	Current As Of	Qtrs in NC (Non-Compliance) (of 12)
CWA	NY0109061	No		09/30/2016	8

Three Year Compliance Status by Quarter

Statute	Program/Pollutant/Violation Type			QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12	QTR
CWA (Source ID: NY0109061)				10/01-12/31/13	01/01-03/31/14	04/01-06/30/14	07/01-09/30/14	10/01-12/31/14	01/01-03/31/15	04/01-06/30/15	07/01-09/30/15	10/01-12/31/15	01/01-03/31/16	04/01-06/30/16	07/01-09/30/16	10/0 12/31
	Facility-Level Status			**In Viol**	**In Viol**	**In Viol**	**SNC/Cat 1**	**No Viol**	**In Viol**	**No Viol**	**In Viol**	**No Viol**	**No Viol**	**In Viol**	**In Viol**	**In Vio**
	SNC (Significant Non-compliance)/RNC (Reportable Non-Compliance) History			N (RptViol)	N (RptViol)	N (RptViol)	X(EffNMth)	R (Resolvd)	V (NonRNCV)		V (NonRNCV)			V (NonRNCV)	V (NonRNCV)	
	Pollutant	**Disch Point**	**Freq**													
CWA	BOD, 5-day, 20 deg. C	001	Mthly						13%							

Statute	Program/Pollutant/Violation Type			QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12	QTR
CWA	BOD, 5-day, percent removal	001	Neither						33%							
CWA	Chlorine, total residual	001	NMth												10%	10
CWA	Coliform, fecal general	001	Mthly			415%	4903%							140%		
CWA	Coliform, fecal general	001	NMth			250%	4900%							128%		
CWA	Solids, settleable	001	NMth		33%		**133%**				67%				67%	33
CWA	Solids, suspended percent removal	001	Neither						20%							
CWA	pH	001	Neither												LIMIT VIOL	LIM VI

*Quarter 13 is draft/unofficial and has not been fully quality assured. Read more

Informal Enforcement Actions (5 Years)

Statute	Source ID	Type of Action	Lead Agency	Date
No data records returned				

Formal Enforcement Actions (5 Years)

Statute	Source ID	Type of Action	Lead Agency	Date	Penalty	Penalty Description
No data records returned						

ICIS (Integrated Compliance Information System) Case History (5 years)

Primary Law/Section	Case No.	Case Type	Lead Agency	Case Name	Issued/Filed Date	Settlement Date	Federal Penalty	State/Local Penalty	SEP (Supplemental Environmental Project) Cost	Comp Action Cost
No data records returned										

Environmental Conditions

Water Quality

Permit ID	Combined Sewer System?	Number of CSO (Combined Sewer Overflow) Outfalls	12-Digit WBD (Watershed Boundary Dataset) HUC (RAD (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Waterbody Name (ICIS (Integrated Compliance Information System))	Impaired Waters	Impaired Class	Causes of Impairment(s) by Group(s)	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?
NY0109061			020200070605	Twaalfskill Brook-Roundout Creek	RONDOUT CK	No			Yes

Waterbody Designated Uses

Reach Code	Waterbody Name	Exceptional Use	Recreational Use	Aquatic Life Use	Shellfish Use	Beach Closure Within Last Year	Beach Closure Within Last Two Years
02020007000004	Rondout Creek	No	No	No	No	No	No

Air Quality

Non-Attainment Area?	Pollutant(s)
No	Ozone
No	Lead
No	Particulate Matter
No	Sulfur Dioxide

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-site Releases	Total Off-site Releases
No data records returned								

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name
No data records returned

Demographic Profile

Demographic Profile of Surrounding Area (3 Miles)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 US Census and American Community Survey data, and are accurate to the extent that the facility latitude and longitude listed below are correct. The latitude and longitude are obtained from the EPA Locational Reference Table (LRT) when available.

Radius of Area:	3	Land Area:	96%	Households in Area:	3,075
Center latitude:	41.847083	Water Area:	4%	Housing Units in Area:	3,469
Center Longitude:	-74.072139	Population Density:	277/sq.mi.	Households on Public Assistance:	34
Total Persons:	7,501	Percent Minority:	10%	Persons Below Poverty Level:	1,552

Race Breakdown	Persons (%)	Age Breakdown	Persons (%)
White:	6,981 (93.07%)	Child 5 years and younger:	376 (5.01%)
African-American:	174 (2.32%)	Minors 17 years and younger:	1,515 (20.2%)
Hispanic-Origin:	407 (5.43%)	Adults 18 years and older:	5,986 (79.8%)
Asian/Pacific Islander:	78 (1.04%)	Seniors 65 years and older:	1,066 (14.21%)
American Indian:	15 (.2%)		
Other/Multiracial:	252 (3.36%)		

Education Level (Persons 25 & older)	Persons (%)	Income Breakdown	Households (%)
Less than 9th Grade:	67 (1.23%)	Less than $15,000:	156 (4.81%)
9th through 12th Grade:	452 (8.33%)	$15,000 - $25,000:	401 (12.37%)
High School Diploma:	1,308 (24.09%)	$25,000 - $50,000:	730 (22.52%)
Some College/2-yr:	1,613 (29.71%)	$50,000 - $75,000:	649 (20.02%)

Education Level (Persons 25 & older)	Persons (%)	Income Breakdown	Households (%)
B.S./B.A. or More:	1,989 (36.64%)	Greater than $75,000:	1,305 (40.27%)

NYSDEC Reports for Spills, Environmental Remediation Sites, Bulk Storage Sites and Located On or Within Close Proximity to the Site

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Spill Incidents Database Search Details

Spill Record

Administrative Information

DEC Region: 3
Spill Number: 0509479

Spill Date/Time

Spill Date: 11/07/2005 **Spill Time:** 06:00:00 PM
Call Received Date: 11/07/2005 **Call Received Time:** 06:49:00 PM

Location

Spill Name: HASSENFLEW RESIDENCE
Address: 15 WASHINGTON AVE
City: ROSENDALE **County:** Ulster

Spill Description

Material Spilled	Amount Spilled	Resource Affected
#2 fuel oil	5 Gal.	Soil

Cause: Tank Overfill
Source: Private Dwelling
Waterbody:

Record Close

Date Spill Closed: 02/03/2006

"Date Spill Closed" means the date the spill case was closed by the case manager in the Department of Environmental Conservation (the Department). The spill case was closed because either; a) the records and data submitted indicate that the necessary cleanup and removal actions have been completed and no further remedial activities are necessary, or b) the case was closed for administrative reasons (e.g., multiple reports of a single spill consolidated into a single spill number). The Department however reserves the right to require additional remedial work in relation to the spill, if in the future it determines that further action is necessary.

If you have questions about this reported incident, please contact the Regional Office where the incident occurred.

Return To Results

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Spill Incidents Database Search Details

Spill Record

Administrative Information

DEC Region: 3
Spill Number: 9712709

Spill Date/Time

Spill Date: 02/13/1998 **Spill Time:** 09:00:00 AM
Call Received Date: 02/13/1998 **Call Received Time:** 09:00:00 AM

Location

Spill Name: PRIVATE RESIDENCE
Address: 19 WEST ST
City: ROSENDALE **County:** Ulster

Spill Description

Material Spilled	Amount Spilled	Resource Affected
waste oil/used oil	UNKNOWN	Soil

Cause: Housekeeping
Source: Private Dwelling
Waterbody:

Record Close

Date Spill Closed: 02/26/1998

"Date Spill Closed" means the date the spill case was closed by the case manager in the Department of Environmental Conservation (the Department). The spill case was closed because either; a) the records and data submitted indicate that the necessary cleanup and removal actions have been completed and no further remedial activities are necessary, or b) the case was closed for administrative reasons (e.g., multiple reports of a single spill consolidated into a single spill number). The Department however reserves the right to require additional remedial work in relation to the spill, if in the future it determines that further action is necessary.

If you have questions about this reported incident, please contact the Regional Office where the incident occurred.

Return To Results

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Spill Incidents Database Search Details

Spill Record

Administrative Information

DEC Region: 3
Spill Number: 0609186

Spill Date/Time

Spill Date: 11/09/2006 **Spill Time:** 05:00:00 PM
Call Received Date: 11/09/2006 **Call Received Time:** 06:08:00 PM

Location

Spill Name: RENTAL TRAILER
Address: 22 WEST END AVE
City: ROSENDALE **County:** Ulster

Spill Description

Material Spilled	Amount Spilled	Resource Affected
kerosene	1 Gal.	Soil

Cause: Unknown
Source: Private Dwelling
Waterbody:

Record Close

Date Spill Closed: 05/25/2010

"Date Spill Closed" means the date the spill case was closed by the case manager in the Department of Environmental Conservation (the Department). The spill case was closed because either; a) the records and data submitted indicate that the necessary cleanup and removal actions have been completed and no further remedial activities are necessary, or b) the case was closed for administrative reasons (e.g., multiple reports of a single spill consolidated into a single spill number). The Department however reserves the right to require additional remedial work in relation to the spill, if in the future it determines that further action is necessary.

If you have questions about this reported incident, please contact the Regional Office where the incident occurred.

Return To Results

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Spill Incidents Database Search Results

Record Count: 5 Rows: 1 to 5

Export XLS Export CSV

	Spill Number	Date Spill Reported	Spill Name	County	City/Town	Address
1.	9107721	10/18/1991	RUSSO RESIDENCE	Ulster	ROSENDALE	BOX 18 CREEK LOCKS ROAD
2.	9712505	02/09/1998	Spill Number 9712505	Ulster	ROSENDALE	109 CREEK LOCKS RD
3.	9904977	07/26/1999	POLE #106639	Ulster	ROSENDALE	CREEK LOCKS RD/ROSENDALE
4.	1100280	04/08/2011	ANTONIOS PIZZA - DUMPSTER	Ulster	ROSENDALE	110 CREEK LOCKS RD
5.	1603478	07/09/2016	ROADWAY	Ulster	ROSENDALE	800 CREEK LOCKS RD

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Spill Incidents Database Search Results

Record Count: 4 Rows: 1 to 4

Export XLS Export CSV

	Spill Number	Date Spill Reported	Spill Name	County	City/Town	Address
1.	8906376	09/28/1989	ST PETERS CHURCH	Ulster	ROSENDALE	JAMES ST
2.	8911763	03/13/1990	PRIVATE DWELLING	Ulster	ROSENDALE	11 JAMES STREET
3.	9410752	11/12/1994	RONDOUT CREEK	Ulster	ROSENDALE	JAMES STREET / 213
4.	9700047	04/01/1997	Spill Number 9700047	Ulster	ROSENDALE	PARKCREST DR/JAMES ST

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Spill Incidents Database Search Results

Record Count: 13 Rows: 1 to 13

Export XLS Export CSV

	Spill Number	Date Spill Reported	Spill Name	County	City/Town	Address
1.	8600357	04/15/1986	Spill Number 8600357	Ulster	ROSENDALE	OFF MAIN ST.
2.	9213229	02/27/1993	STEWARTS SHOP	Ulster	ROSENDALE	MAIN STREET
3.	9505614	08/07/1995	ROADWAY	Ulster	ROSENDALE	110 MAIN STREET
4.	9505942	08/14/1995	440 MAIN STREET	Ulster	ROSENDALE	440 MAIN ST
5.	0135029	01/14/2002	NYS ROUTE 213	Ulster	ROSENDALE	MAIN AND CENTER ST.
6.	0410726	12/30/2004	ZACHARYS RESTAURANT	Ulster	ROSENDALE	388 MAIN STREET
7.	0607135	09/21/2006	STEWARTS # 177	Ulster	ROSENDALE	212 MAIN STREET
8.	0703188	06/18/2007	STEWARTS SHOP#177	Ulster	ROSENDALE	212 MAIN STREET
9.	1100951	04/26/2011	RENTAL PROPERTY	Ulster	ROSENDALE	393 MAIN ST
10.	1205557	09/04/2012	ROSENDALE TOWN HALL	Ulster	ROSENDALE	424 MAIN ST
11.	1212783	11/29/2012	STEWARTS 177	Ulster	ROSENDALE	212 MAIN ST
12.	1306550	09/22/2013	SHOP# 177 PAVEMENT	Ulster	ROSENDALE	212 MAIN ST
13.	1505321	08/17/2015	ROSENDALE LIBRARY	Ulster	ROSENDALE	264 MAIN ST

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Spill Incidents Database Search Results

Record Count: 8 Rows: 1 to 8

Export XLS Export CSV

	Spill Number	Date Spill Reported	Spill Name	County	City/Town	Address
1.	9704951	07/09/1997	ROWLEY BUILDING PRODUCTS	Ulster	ROSENDALE	ROUTE 32
2.	0107420	10/19/2001	CUMBERLAND FARMS/GULF 3177	Ulster	ROSENDALE	1146 ROUTE 32
3.	0312157	02/01/2004	GAS STATION	Ulster	ROSENDALE	1149 ROUTE 32
4.	0402449	06/05/2004	CUMBERLAND FARMS	Ulster	ROSENDALE	1146 ROUTE 32
5.	1003372	06/25/2010	CUMBERLAND FARMS 3177	Ulster	ROSENDALE	1146 ROUTE 32
6.	1106864	09/02/2011	SOIL	Ulster	ROSENDALE	CORNELL ST AND ROUTE 32
7.	1109896	11/07/2011	CUMBERLAND FARMS STORE 3177	Ulster	ROSENDALE	1146 ROUTE 32
8.	1502320	06/02/2015	STREET	Ulster	ROSENDALE	146 KALLOP RD TO ROUTE 32

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Spill Incidents Database Search Results

Record Count: 22 Rows: 1 to 22

Export XLS Export CSV

	Spill Number	Date Spill Reported	Spill Name	County	City/Town	Address
1.	8710669	03/22/1988	CHILCOTTES	Ulster	ROSENDALE	RT 32 NORTH
2.	8800227	04/07/1988	BIG SAVER	Ulster	ROSENDALE	RT 32 NORTH
3.	9211530	01/07/1993	PUDDLED OIL IN ROAD	Ulster	TILLSON (ROSENDALE)	RT 32 & TILSON SW CORNER
4.	9514264	02/08/1996	STEWARTS ROSENDALE	Ulster	ROSENDALE	RT 213 & RT 32
5.	9708842	10/29/1997	YONETTI AUTO BODY	Ulster	ROSENDALE	RT 32
6.	9712501	02/09/1998	CUMBERLAND FARMS STORE	Ulster	ROSENDALE	RT 32
7.	0009984	12/04/2000	SUNOCO	Ulster	ROSENDALE	RT 32 & WASHINGTON ST
8.	0207582	10/22/2002	CITGO GAS STATION	Ulster	ROSENDALE	RT 32
9.	0303772	07/10/2003	FORMER GAS STATION	Ulster	ROSENDALE	RT 32N / MAPLE HILL
10.	0311255	01/05/2004	ROWLEY BUILDING PRODUCTS	Ulster	ROSENDALE	RT 32
11.	0510696	12/13/2005	AREO STAR PETRO	Ulster	ROSENDALE	1083 RT 32
12.	0600564	04/14/2006	AEROSTAR PETROLEUM	Ulster	ROSENDALE	1083 RT 32
13.	0604108	07/13/2006	ROWLEY BUIDLING/LUMBER YARD	Ulster	ROSENDALE	918 RT 32
14.	0700690	04/18/2007	POLE#105330	Ulster	ROSENDALE	RT 32 & RT 213
15.	0704477	07/20/2007	CUMBERLAND FARMS	Ulster	ROSENDALE	1146 RT 32
16.	0712207	02/20/2008	CUMBERLAND FARM	Ulster	ROSENDALE	1146 RT 32`
17.	0713489	03/21/2008	C.F.	Ulster	ROSENDALE	1146 RT 32`
18.	0800270	04/07/2008	CUMBERLAND #3177	Ulster	ROSENDALE	1146 RT 32`
19.	0800565	04/14/2008	CUMBERLAND #3177	Ulster	ROSENDALE	1146 RT 32`

20.	0902687	06/05/2009	CUMBERLAND FARMS	Ulster	ROSENDALE	1146 RT 32
21.	0902689	06/05/2009	CUMBERLAND FARMS STORE 3177	Ulster	ROSENDALE	1146 RT 32
22.	1203134	06/29/2012	ROADWAY	Ulster	ROSENDALE	ST RT 32 / BEYERSTORFER LANE

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Spill Incidents Database Search Results

Record Count: 2 Rows: 1 to 2

Export XLS Export CSV

	Spill Number	Date Spill Reported	Spill Name	County	City/Town	Address
1.	9506000	08/15/1995	CENTURY HOUSE HISTORICAL	Ulster	ROSENDALE	RT. 213 SNYDER ESTATE
2.	0710006	12/19/2007	RESIDENCE	Ulster	ROSENDALE	4 SNYDER AVE

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Spill Incidents Database Search Results

Record Count: 3 Rows: 1 to 3

Export XLS Export CSV

	Spill Number	Date Spill Reported	Spill Name	County	City/Town	Address
1.	9009156	11/21/1990	A+ STATION	Ulster	ROSENDALE	RT. 32 & WASHINGTON ST.
2.	0009984	12/04/2000	SUNOCO	Ulster	ROSENDALE	RT 32 & WASHINGTON ST
3.	0509479	11/07/2005	HASSENFLEW RESIDENCE	Ulster	ROSENDALE	15 WASHINGTON AVE

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Spill Incidents Database Search Results

Record Count: 1 Rows: 1 to 1

Export XLS Export CSV

	Spill Number	Date Spill Reported	Spill Name	County	City/Town	Address
1.	0609186	11/09/2006	RENTAL TRAILER	Ulster	ROSENDALE	22 WEST END AVE

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Spill Incidents Database Search Results

Record Count: 1 Rows: 1 to 1

Export XLS Export CSV

	Spill Number	Date Spill Reported	Spill Name	County	City/Town	Address
1.	9712709	02/13/1998	PRIVATE RESIDENCE	Ulster	ROSENDALE	19 WEST ST

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Spill Incidents Database Search Details

Spill Record

Administrative Information

DEC Region: 3
Spill Number: 0107420

Spill Date/Time

Spill Date: 10/19/2001 **Spill Time:** 10:00:00 AM
Call Received Date: 10/19/2001 **Call Received Time:** 10:59:00 AM

Location

Spill Name: CUMBERLAND FARMS/GULF 3177
Address: 1146 ROUTE 32
City: ROSENDALE **County:** Ulster

Spill Description

Material Spilled	Amount Spilled	Resource Affected
gasoline	UNKNOWN	Soil

Cause: Other
Source: Gasoline Station or other PBS Facility
Waterbody:
PBS #: 3-037478

Record Close

Date Spill Closed: Not closed

If you have questions about this reported incident, please contact the Regional Office where the incident occurred.

Return To Results

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Bulk Storage Database Search Details

Next Site Last Site

Facility Information

Site No.: 3-000287
Status: Unregulated/Closed
Expiration Date: 07/06/2000
Site Type: CBS
Site Name: ROSENDALE RECREATION CENTER
Address: ROUTE 32, APPROX 1/4 MILE SOUTH OF RONDOUT CREEK
Locality: ROSENDALE
State: NY
Zipcode: 12472
County: Ulster

Owner(s) Information

Facility Owner: TOWN OF ROSENDALE
PO BOX 423 . ROSENDALE, NY. 12472

Tank Information

1 Tanks Found

Tank No	Tank Location	Status	Capacity (Gal.)
1	Aboveground - in contact with soil	Closed - In Place	800

Return To Results

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Bulk Storage Database Search Details

First Site | Previous Site | Next Site | Last Site

Facility Information

Site No.: 3-333867
Status: Active
Expiration Date: 12/03/2019
Site Type: PBS
Site Name: SUN CONURE PETROLEUM, INC.
Address: 1149 RT 32
Locality: ROSENDALE
State: NY
Zipcode: 12472
County: Ulster

Owner(s) Information

Facility Owner: AERO STAR PETROLEUM, INC.
1149 ROUTE 32 . ROSENDALE, NY. 12472
Mail Contact: AERO STAR PETROLEUM, INC.
1149 RT 32 . ROSENDALE, NY. 12472

Tank Information

9 Tanks Found

Tank No	Tank Location	Status	Capacity (Gal.)
1	Underground including vaulted with no access for inspection	Closed - Removed	12000
2	Underground including vaulted with no access for inspection	Closed - Removed	12000
3	Underground including vaulted with no access for inspection	Closed - Removed	12000
4	Underground including vaulted with no access for inspection	Closed - Removed	550
5	Aboveground on saddles, legs, stilts, rack or cradle	In Service	280
6	Underground including vaulted with no access for inspection	In Service	6000

7	Underground including vaulted with no access for inspection	In Service	10000
8A	Underground including vaulted with no access for inspection	In Service	6000
8B	Underground including vaulted with no access for inspection	In Service	4000

Return To Results

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Bulk Storage Database Search Details

First Site | Previous Site | Next Site | Last Site

Facility Information

Site No.: 3-171506
Status: Active
Expiration Date: 08/24/2017
Site Type: PBS
Site Name: STEWART'S SHOPS #177
Address: 212 MAIN STREET PO BOX 508
Locality: ROSENDALE
State: NY
Zipcode: 12472
County: Ulster

Owner(s) Information

Facility Owner: STEWARTS SHOPS CORP
PO BOX 435 . SARATOGA SPRINGS, NY. 12866
Mail Contact: STEWARTS SHOPS CORP
PO BOX 435 . SARATOGA SPRINGS, NY. 12866

Tank Information

9 Tanks Found

Tank No	Tank Location	Status	Capacity (Gal.)
1	Underground including vaulted with no access for inspection	Closed - Removed	4000
2	Underground including vaulted with no access for inspection	Closed - Removed	4000
3	Underground including vaulted with no access for inspection	Closed - Removed	4000
4	Underground including vaulted with no access for inspection	Closed - Removed	4000
5	Underground including vaulted with no access for inspection	Closed - Removed	8000
6 A	Underground including vaulted with no access for inspection	Closed - Removed	4000

6B	Underground including vaulted with no access for inspection	Closed - Removed	4000
7	Underground including vaulted with no access for inspection	In Service	12000
8	Underground including vaulted with no access for inspection	In Service	6000

Return To Results

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Bulk Storage Database Search Details

First Site | Previous Site | Next Site | Last Site

Facility Information

Site No.: 3-058165
Status: Unregulated/Closed
Expiration Date: 12/18/2011
Site Type: PBS
Site Name: ST PETER'S CHURCH
Address: 1017 KEATOR AVE
Locality: ROSENDALE
State: NY
Zipcode: 12472
County: Ulster

Owner(s) Information

Facility Owner: ST PETERS CHURCH
1017 KEATOR AVENUE . ROSENDALE, NY. 12472
Mail Contact: ST PETERS CHURCH
1017 KEATOR AVENUE . ROSENDALE, NY. 12472

Tank Information

14 Tanks Found

Tank No	Tank Location	Status	Capacity (Gal.)
1	Underground including vaulted with no access for inspection	Closed - In Place	3000
10	Aboveground on saddles, legs, stilts, rack or cradle	In Service	275
11	Aboveground on saddles, legs, stilts, rack or cradle	In Service	275
12	Aboveground - in contact with impervious barrier	In Service	330
13	Aboveground - in contact with impervious barrier	In Service	330
14	Aboveground on saddles, legs, stilts, rack or cradle	In Service	275

2	Underground including vaulted with no access for inspection	Closed - Removed	3000
3	Underground including vaulted with no access for inspection	Closed - Removed	1000
4	Aboveground on saddles, legs, stilts, rack or cradle	Closed - Removed	275
5	Aboveground on saddles, legs, stilts, rack or cradle	Closed - Removed	275
6	Underground including vaulted with no access for inspection	Closed - Removed	1000
7	Underground including vaulted with no access for inspection	Closed - Removed	2500
8	Aboveground on saddles, legs, stilts, rack or cradle	In Service	275
9	Aboveground on saddles, legs, stilts, rack or cradle	In Service	275

Return To Results

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Bulk Storage Database Search Details

First Site Previous Site

Facility Information

Site No.: 3-601354
Status: Active
Expiration Date: 07/26/2019
Site Type: PBS
Site Name: PARK HEIGHTS PROJECT
Address: 1033 ROUTE 32
Locality: ROSENDALE
State: NY
Zipcode: 12472
County: Ulster

Owner(s) Information

Facility Owner: RUPCO
289 FAIR STREET . KINGSTON, NY. 12401
Mail Contact: RUPCO
289 FAIR STREET . KINGSTON, NY. 12401

Tank Information

1 Tanks Found

Tank No	Tank Location	Status	Capacity (Gal.)
492691	Underground including vaulted with no access for inspection	In Service	2500

Return To Results

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Bulk Storage Database Search Details

First Site | Previous Site | Next Site | Last Site

Facility Information

Site No.: 3-037478
Status: Active
Expiration Date: 01/29/2018
Site Type: PBS
Site Name: AERO STAR PETROLEUM, INC.
Address: 1146 ROUTE 32
Locality: ROSENDALE
State: NY
Zipcode: 12472
County: Ulster

Owner(s) Information

Facility Owner: AERO STAR PETROLEUM, INC.
1149 ROUTE 32 . ROSENDALE, NY. 12472
Mail Contact: AERO STAR PETROLEUM, INC.
1149 ROUTE 32 . ROSENDALE, NY. 12472

Tank Information

6 Tanks Found

Tank No	Tank Location	Status	Capacity (Gal.)
1	Underground including vaulted with no access for inspection	Closed - Removed	8000
2	Underground including vaulted with no access for inspection	Closed - Removed	8000
3	Underground including vaulted with no access for inspection	Closed - Removed	8000
4	Underground including vaulted with no access for inspection	In Service	12000
5	Underground including vaulted with no access for inspection	In Service	12000
6	Underground including vaulted with no access for inspection	In Service	8000

Return To Results

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Bulk Storage Database Search Details

First Site | Previous Site | Next Site | Last Site

Facility Information

Site No.: 3-168874
Status: Active
Expiration Date: 11/24/2019
Site Type: PBS
Site Name: AZAM & SONS
Address: 1083 ROUTE 32
Locality: ROSENDALE
State: NY
Zipcode: 12472
County: Ulster

Owner(s) Information

Facility Owner: AERO STAR PETROLEUM, INC.
1149 ROUTE 32 . ROSENDALE, NY. 12472
Mail Contact: AERO STAR PETROLEUM, INC.
1149 RT 32 . ROSENDALE, NY. 12472

Tank Information

14 Tanks Found

Tank No	Tank Location	Status	Capacity (Gal.)
01A	Underground including vaulted with no access for inspection	In Service	8000
01B	Underground including vaulted with no access for inspection	In Service	6000
01C	Underground including vaulted with no access for inspection	In Service	4000
01D	Underground including vaulted with no access for inspection	In Service	2000
02	Aboveground on saddles, legs, stilts, rack or cradle	In Service	1000
1	Underground including vaulted with no access for inspection	Closed - Removed	10000

2	Underground including vaulted with no access for inspection	Closed - Removed	1000
3	Aboveground on saddles, legs, stilts, rack or cradle	In Service	275
4	Underground including vaulted with no access for inspection	Closed - Removed	4000
4	Aboveground on saddles, legs, stilts, rack or cradle	In Service	1000
5	Underground including vaulted with no access for inspection	Closed - Removed	2000
6	Underground including vaulted with no access for inspection	Closed - Removed	4000
7	Aboveground on saddles, legs, stilts, rack or cradle	Closed - Removed	275
9	Underground including vaulted with no access for inspection	In Service	1000

Return To Results

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Environmental Site Remediation Database Search Details

Site Record

Administrative Information

Site Name: 1083 Route 32
Site Code: 356031
Program: State Superfund Program
Classification: N *
EPA ID Number:

Location

DEC Region: 3
Address: 1083 Route 32
City: Rosendale Zip: 12472-
County: Ulster
Latitude: 41.844031231
Longitude: -74.074226957
Site Type:
Estimated Size: 0.31 Acres

Site Owner(s) and Operator(s)

Current Owner Name: Aerostar Petroleum
Current Owner(s) Address: 1149 Route 32
Rosendale,NY, 12472

Site Document Repository

Name: Rosendale Library
Address: 264 Main Street
Rosendale,NY 12472
Name: NYSDEC Region 3 Office
Address: 21 South Putt Corners Road
New Paltz,NY 12561

Site Description

Location: The site is located near the intersection of Route 32 and Madeline Lane in Rosendale, Ulster County. Site Features: A one story slab on grade building exists on the site.

The rest of the site is paved. Current Zoning and Land Use: The site is zoned and used for commercial purposes. The site is surrounded by a mix of commercial and residential properties. Past Use of the Site: Reports indicate that from approximately 1960 to 1970 the site operated as a chemical company which dyed clothing. The site operated as a garage from 1970 to 1979. Since that time, the site has predominantly been utilized as a gas station. The current owner has been operating a Citgo gas station at the site since 2004. Site Geology and Hydrogeology: Site soil includes sands, silt and clay. Groundwater flow is generally towards the river and flows in a northernly direction. The depth to groundwater varies at the site and is present from 3 to 12 feet below grade.

Contaminants of Concern (Including Materials Disposed)

Contaminant Name/Type

vinyl chloride

cis-1,2-dichloroethene

tetrachloroethene (PCE)

Site Environmental Assessment

Nature and Extent of Contamination: The contaminants of concern include volatile organic compounds, specifically tetrachloroethene (PCE), cis-1,2 dichloroethene (DCE) and vinyl chloride. This contamination has been attributed to the nearby Rosendale Cleaners site (ID No. 356050) Groundwater: Contamination is present in on-site and off-site monitoring wells. On-site overburden groundwater exceeds standards for PCE, cis-1,2 DCE and vinyl chloride at maximum concentrations of 12, 960 and 240 ug/L, respectively. Soil: Significant soil contamination was not observed in samples collected either on-site or off-site. Soil Vapor & Indoor Air: Soil vapor samples were collected in the on-site structure and at adjacent residences. Based upon the results, there were no impacts to sub-slab soil vapor or indoor air at any of the sampling locations. Special Resources Impacted: The Rondout Creek is located approximately 600 feet downgradient (north) of the site. Downgradient wells that were installed during the Remedial Investigation showed no impacts in the vicinity of the creek.

Site Health Assessment

Drinking contaminated groundwater is not expected because the area is served by public water. Contact with soil contamination is unlikely since the site is covered by buildings and pavement.

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* **Class N Sites:** "DEC offers this information with the caution that the amount of information provided for Class N sites is highly variable, not necessarily based on any DEC investigation, sometimes of unknown origin, and sometimes is many years old. Due to the preliminary nature of this information, significant conclusions or decisions should not be based solely upon this summary."

For more Information: E-mail Us

Return To Results

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Environmental Site Remediation Database Search Details

Site Record

Administrative Information

Site Name: Rosendale Cleaners
Site Code: 356050
Program: State Superfund Program
Classification: P *
EPA ID Number:

Location

DEC Region: 3
Address: 1090-1094 Route 32
City: Rosendale Zip: 12472
County: Ulster
Latitude: 41.844382837
Longitude: -74.073539971
Site Type:
Estimated Size: 1.94 Acres

Site Owner(s) and Operator(s)

Current Owner Name: Aero Star Realty, LLC
Current Owner(s) Address: 1149 Route 32
Rosendale,NY, 12472
Current On-Site Operator: Aero Star Realty, LLC
Stated Operator(s) Address: 1149 Route 32
Rosendale,NY 12472

Site Description

Location: The site is located at 1090-1094 Route 32 near the intersection of Route 32 and Madeline Lane in Rosendale, Ulster County. Site Features: The site is predominantly paved. A one story building exists on the site that is currently unoccupied. The site is tiered and has a retaining wall securing the upper terrace. The building foundation is exposed as part of the original structure was demolished. The footprint of the entire building is approximately 15,000

square feet. A mound of soil/debris pile exists on the southern part of the site. Current Zoning and Land Use: The site is zoned for commercial purposes. The on site building is used for storage. The site is surrounded by a mix of commercial and residential properties. Past Use of the Site: The site has been used for a variety of commercial purposes since at least the mid 1900s. A dry cleaner reportedly operated on the site until the business burned down in 1981. A hardware store and a diner also operated on-site until around 2009. Site Geology and Hydrogeology: Site soil includes sands, silt and clay. Groundwater flow is generally towards the river and flows in a northerly direction. The depth to groundwater varies at the site and is present from 8 to 19 feet below grade.

Contaminants of Concern (Including Materials Disposed)

Contaminant Name/Type
trichloroethene (TCE)
cis-1,2-dichloroethene
tetrachloroethene (PCE)
vinyl chloride

Site Environmental Assessment

Nature and Extent of Contamination: The contaminants of concern include volatile organic compounds, specifically tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2 dichloroethene (DCE) and vinyl chloride. Groundwater: Contamination is present in on-site and off-site monitoring wells. Overburden groundwater exceeds standards for PCE, TCE, 1,2- DCE and vinyl chloride at maximum concentrations of 320, 360, 8,000 and 1,100 ug/L, respectively. The highest detection of each contaminant was detected in the vicinity of a debris pile on the southern edge of the site. Soil: Significant soil contamination was not observed in samples collected either on-site or off-site. However the debris pile is believed to be the source area for the contamination based upon visual observation and analysis of groundwater patterns. Special Resources Impacted: The Rondout Creek is located downgradient (north) of the site. Downgradient wells that were installed during the Remedial Investigation showed no impacts in the vicinity of the creek.

Site Health Assessment

Drinking contaminated groundwater is not expected because the area is served by public water. Contact with soil contamination is unlikely since a majority of the site is covered by buildings and pavement. Volatile organic compounds in the groundwater or soil may move into

the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Because the site is vacant, the inhalation of site-related contaminants due to soil vapor intrusion does not represent a current concern. In addition, sampling indicates soil vapor intrusion may be a concern for one off-site building.

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* **Class P Sites:** "DEC offers this information with the caution that it should not be used to form conclusions about site contamination beyond what is implied by the classification of this site, namely, that there is a potential for concern about site contamination. Information regarding a Class P site (potential Registry site) is by definition preliminary in nature and unverified because the DEC's investigation of the site is not yet complete. Due to the preliminary nature of this information, significant conclusions or decisions should not be based solely upon this summary."

For more Information: E-mail Us

Return To Results

Refine This Search

Attachment 6

Section 7 Documents:
NHP Documentation,
NYSDEC NHP Bat Review Request,
Phase I Bat Summer Habitat Assessment,
& USFWS Consultation Letters

Peoples, Dina

From: naturalheritage@dec.ny.gov
Sent: Friday, March 3, 2017 11:36 AM
To: Camacho, Christopher
Subject: Confirmation of your submitted request to New York Natural Heritage

Submission ID: 1126
Submitted on Friday, March 3, 2017 - 11:35 Submitted values are:

Company, Organization, or Agency: Governor's Office of Storm Recovery (GOSR) Requestor Name: Chris Camacho Requestor Address (Street/PO Box): 70 Pleasant Hill Road Requestor City: Mountainville Requestor State: New York Requestor Zip Code: 10953 Requestor Telephone #: 8455345959 Requestor Email: ccamacho@tectonicengineering.com Project Type: flood control/mitigation Project Name: Washington Park Stormwater Mitigation Project Project Applicant: Town of Rosendale Project County: Ulster Town (Ulster County): Rosendale Project Summary:

The Washington Park Stormwater Mitigation Project ("Proposed Project") involves the installation of culvert pipes, drainage ditches, swales, catch basins, a storm sewer manhole, and a pedestrian bridge in the Town of Rosendale, Ulster County, New York. Washington Park, the residential area located northwest of the intersection of New York State (NYS) Route 32 and NYS Route 213, has been subjected to historic, chronic flooding during large rain events. The proposed drainage improvements will effectively convey water during 50-year storm events and alleviate chronic flooding problems.

There are two defined drainageways that cross through the Washington Park area. Runoff from a hill/mountain to the northeast and runoff from the hillside adjacent to Fann's Plaza are conveyed by storm sewers to an extant United States Army Corps of Engineers (USACE) ponding area located on the south side of the Site (hereafter referred to as the Eastern Drainage System). Runoff from a hill/mountain to the west is conveyed via a swale at the base of the mountain to a storm sewer system that crosses under West End Avenue and Josephine Avenue to an existing USACE ponding area on the west side of Central Avenue (hereafter referred to as the Western Drainage System).

Improvement of the Eastern Drainage System will involve the construction of the following: a drainage swale along Hillside Avenue; a new storm sewer along West Street (from Hillside Avenue to Washington Avenue); a new storm sewer on Washington Avenue (from West Street to where it crosses under Washington Avenue); and a new storm sewer from Washington Avenue to the USACE ponding area. An existing USACE ponding area will also be regraded to provide a uniform alignment and cross sectional area that is consistent with the original USACE Rondout Creek Flood Control design. Proposed Eastern Drainage System improvements will include the installation of 181 linear feet (LF) of 48" diameter HDPE culvert pipe, 46 LF of 36" diameter HDPE culvert pipe, 745 LF of 24" diameter HDPE culvert pipe, 46 LF of 18" diameter HDPE culvert pipe, nine catch basins, and one storm sewer manhole. There are a total of eight trees located east of NYS Route 32 and south of Washington Avenue are pro posed to be removed during demolition. These trees are situated between residential and commercial properties.

Improvement of the Western Drainage System will involve the construction of a drainage swale along the mountainside from the intersection of Central Avenue and Hillside Avenue to SBL# 62.82-1-4 (37 West End Avenue) and a new storm sewer from SBL# 62.82-1-4 (37 West End Avenue) to the existing USACE ponding area on the south side of Josephine Avenue. The Western Drainage System will be designed with a filter fabric lined trench and one perforated 30" HDPE pipe to provide positive relief of any potential shallow groundwater levels. Shallow groundwater would drain by gravity through a one-foot thick stone layer under the pipe and the perforated pipe. Proposed Western Drainage System improvements will include the installation of 1,002 LF of 30" diameter HDPE culvert pipe (dual culvert 501 LF) and five catch basins. The proposed mountainside drainage swale crosses through nine private properties. During demolition, four trees would be removed from West End Avenue and two tree s would be removed on Josephine Avenue, where

the proposed drainage system would intersect the roadway. These trees are located in the right-of-way adjacent to residential properties. Temporary construction easements and permanent drainage maintenance easements will have to be obtained.

The Proposed Project will also involve the construction of a Pedestrian Bridge over a ditch that is located between Central Avenue and NYS Route 32. The Pedestrian Bridge will be 60 feet long and will be installed at an elevation of 58 feet, which is 2 feet above the 100 year Base Flood Elevation of 56 feet.

Current Land Use: The site is currently a residential area located adjacent to a forested hillside.
Tax parcel number:
Latitude:
Longitude:
Street Address of Project:
Project Notes:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program
625 Broadway, Fifth Floor, Albany, NY 12233-4757
P: (518) 402-8935 | F: (518) 402-8925
www.dec.ny.gov

March 24, 2017

Chris Camacho
Tectonic Engineering
70 Pleasant Hill Road
Mountainville, NY 10953

Re: Washington Park Stormwater Mitigation Project
County: Ulster Town/City: Rosendale

Dear Mr. Camacho:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

Enclosed is a report of rare or state-listed animals and plants, and significant natural communities that our database indicates occur in the vicinity of the project site.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our database. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

Our database is continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 3 Office, Division of Environmental Permits, at dep.r3@dec.ny.gov, (845) 256-3054.

Sincerely,

Nicholas Conrad
Information Resources Coordinator
New York Natural Heritage Program

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The following state-listed animals have been documented in the vicinity of the project site.

The following list includes animals that are listed by NYS as Endangered, Threatened, or Special Concern; and/or that are federally listed or are candidates for federal listing.

For information about any permit considerations for the project, please contact the Permits staff at the NYSDEC Region 3 Office at dep.r3@dec.ny.gov, (845) 256-3054. For information about potential impacts of the project on these species, and how to avoid, minimize, or mitigate any impacts, contact the Region 3 Wildlife staff at Wildlife.R3@dec.ny.gov, (845) 256-3098.

The following species have been documented about .5 mile from the project site. Individual animals may travel 2.5 miles or more from documented locations.
The main impact of concern for bats is the removal of potential roost trees.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Indiana Bat *Hibernaculum*	*Myotis sodalis*	Endangered	Endangered	10910
Northern Long-eared Bat *Hibernaculum*	*Myotis septentrionalis*	Threatened	Threatened	14129

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the listed animals in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NYSDEC at www.dec.ny.gov/animals/7494.html.

The following significant natural community has been documented adjacent to the project site.

We recommend that potential onsite and offsite impacts of the proposed project on this community be addressed as part of any environmental assessment or review conducted as part of the planning, permitting and approval process, such as reviews conducted under SEQR. Final requirements of the project to avoid, minimize, or mitigate potential impacts are determined by the lead permitting agency or the government body approving the project.

The following significant natural communities are considered significant from a statewide perspective by the NY Natural Heritage Program. They are either occurrences of a community type that is rare in the state, or a high quality example of a more common community type. By meeting specific, documented criteria, the NY Natural Heritage Program considers these community occurrences to have high ecological and conservation value.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*HERITAGE CONSERVATION STATUS*
Upland/Terrestrial Communities			
Limestone Woodland			High Quality Occurrence of Rare Community Type
Greater Rosendale woods, including on west side of project site: The woodland is medium-sized, in good condition, and located in many patches among a relatively intact forest.			9429

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

Information about many of the natural community types in New York, including identification, dominant and characteristic vegetation, distribution, conservation, and management, is available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org. For descriptions of all community types, go to www.dec.ny.gov/animals/97703.html for Ecological Communities of New York State.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program
625 Broadway, Fifth Floor, Albany, NY 12233-4757
P: (518) 402-8935 | F: (518) 402-8925
www.dec.ny.gov

March 24, 2017

Chris Camacho
Tectonic Engineering
70 Pleasant Hill Road
Mountainville, NY 10953

Re: Washington Park Stormwater Mitigation Project
County: Ulster Town/City: Rosendale

Dear Mr. Camacho:

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Our database is continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 3 Office, Division of Environmental Permits, at dep.r3@dec.ny.gov, (845) 256-3054.

Sincerely,

Nicholas Conrad
Information Resources Coordinator
New York Natural Heritage Program

227

The following state-listed animals have been documented in the vicinity of the project site.

The following list includes animals that are listed by NYS as Endangered, Threatened, or Special Concern; and/or that are federally listed or are candidates for federal listing.

For information about any permit considerations for the project, please contact the Permits staff at the NYSDEC Region 3 Office at dep.r3@dec.ny.gov, (845) 256-3054. For information about potential impacts of the project on these species, and how to avoid, minimize, or mitigate any impacts, contact the Region 3 Wildlife staff at Wildlife.R3@dec.ny.gov, (845) 256-3098.

The following species have been documented about .5 mile from the project site. Individual animals may travel 2.5 miles or more from documented locations.
The main impact of concern for bats is the removal of potential roost trees.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Indiana Bat *Hibernaculum*	*Myotis sodalis*	Endangered	Endangered	10910
Northern Long-eared Bat *Hibernaculum*	*Myotis septentrionalis*	Threatened	Threatened	14129

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the listed animals in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NYSDEC at www.dec.ny.gov/animals/7494.html.

The following significant natural community has been documented adjacent to the project site.

We recommend that potential onsite and offsite impacts of the proposed project on this community be addressed as part of any environmental assessment or review conducted as part of the planning, permitting and approval process, such as reviews conducted under SEQR. Final requirements of the project to avoid, minimize, or mitigate potential impacts are determined by the lead permitting agency or the government body approving the project.

The following significant natural communities are considered significant from a statewide perspective by the NY Natural Heritage Program. They are either occurrences of a community type that is rare in the state, or a high quality example of a more common community type. By meeting specific, documented criteria, the NY Natural Heritage Program considers these community occurrences to have high ecological and conservation value.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*HERITAGE CONSERVATION STATUS*
Upland/Terrestrial Communities			
Limestone Woodland			High Quality Occurrence of Rare Community Type
Greater Rosendale woods, including on west side of project site: The woodland is medium-sized, in good condition, and located in many patches among a relatively intact forest.			9429

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

Information about many of the natural community types in New York, including identification, dominant and characteristic vegetation, distribution, conservation, and management, is available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org. For descriptions of all community types, go to www.dec.ny.gov/animals/97703.html for Ecological Communities of New York State.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife
625 Broadway, 5th Floor, Albany, NY 12233-4750
P: (518) 402-8924 | F: (518) 402-8925
www.dec.ny.gov

April 10, 2017

Ms. Lori Shirley
Governor's Office of Storm Recovery
99 Washington Avenue
Suite 1224
Albany NY 12260

RE: Washington Park Stormwater Mitigation
Town of Rosendale, Ulster County

Dear Ms. Shirley,

We received your jurisdictional inquiry request for the Washington Park stormwater mitigation project, located in the Town of Rosendale, Ulster County, NY. It is our understanding that 14 trees will be removed during groundwork to improve stormwater drainage in the area. Based on our understanding of the project and review of the Washington Park Stormwater Mitigation clearing plans developed in February 2017 and the NYS Resources map created by Amanda Bailey on 4/10/2017 (attached), we have the following comments on the project:

STATE-LISTED SPECIES

All threatened or endangered species are subject to regulation under Article 11, Title 5 of the Environmental Conservation Law and a permit is required for a taking of that species pursuant to 6 NYCRR Part 182. Besides death of individuals, taking includes harassment, interference with essential behaviors, and adverse modification of habitat. If the site is in close proximity to known occurrences of state-protected species, additional information on the proposal will be required by the appropriate regional office for a determination on the need for a permit.

DEC has reviewed the State's Natural Heritage records for state-listed bat species. This site is in close proximity to known occurrences of the following protected species:

Common Name	Scientific Name	State Status	Federal Status
Northern long-eared bat	*Myotis septentrionalis*	Threatened	Threatened
Indiana bat	*Myotis sodalis*	Endangered	Endangered

We have reviewed the available information in the New York Natural Heritage Program database on known occurrences of rare or state-listed bat species. This project area is located within **occupied habitat** for both the Indiana bat and the northern long-eared bat (see NYS Resource Map, attached). The project area is within 2.5 miles of multiple hibernacula occupied by both species of bat, the closest of which is approximately 0.70 miles (1,130 meters) from the project location. The major concern for these species in relation to this project would be the destruction of potential swarming and/or staging habitat and potential roosts through tree clearing. Because of the proximity of the project area to known winter hibernacula, any tree clearing should be conducted between November 1 and March 31, when bats are inactive in hibernation sites. DEC also recommends that all snag and cavity trees, as well as any trees within 0.25 miles of a hibernacula entrance, remain uncut, unless their removal is necessary for protection of human life and property. Please refer to the DEC Northern long-eared bat protective measures guidance, available at: http://www.dec.ny.gov/animals/106090.html .

If the restrictions listed above cannot be followed, additional surveys may be required. If surveys suggest potential presence of listed species, an incidental take permit may be required. The DEC Region 3 office should be contacted to discuss the potential for an incidental take permit, as well as specifics regarding bat occurrences and the location of hibernacula in the area.

This document is only intended to address state-listed bat species. Other rare or state-listed species, natural communities or other significant habitats may exist within the project area and would require additional review. The absence of data does not necessarily mean that any other rare or state-listed bat species do not exist on or adjacent to the proposed site. Rather, our files currently do not contain information which indicates their presence. For most sites, comprehensive field surveys have not been conducted. We cannot provide a definitive statement on the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

OTHER

USFWS Cortland Field Office

If a federal agency is involved in the project, or if federal funding is used, there are additional considerations for federally listed species. Section 7(a)(1) of the Endangered Species Act requires federal agencies to use their authorities to conserve listed species. Section 7(a)(2) requires federal agencies to consult on any action that may affect a listed species.

If any tree clearing activities will be occurring within 0.25 miles of a hibernacula entrance for northern long-eared bats, you may be required to obtain a permit from the US Fish and Wildlife Service. Because of the proximity of this location to known Indiana bat hibernacula, consultation with the local USFWS field office will be necessary to avoid potential take.

Other permits from this Department or other agencies may be required for projects conducted on this property now or in the future. Also, regulations applicable to the location subject to this determination occasionally are revised and you should, therefore, verify the need for permits if your project is delayed or postponed. This determination regarding the need for permits will remain effective for a maximum of one year unless you are otherwise notified. Applications may be downloaded from our website at www.dec.ny.gov under “Programs” then “Division of Environmental Permits.”

Please contact this office if you have questions regarding the above information. Thank you.

Sincerely,

Amanda Bailey

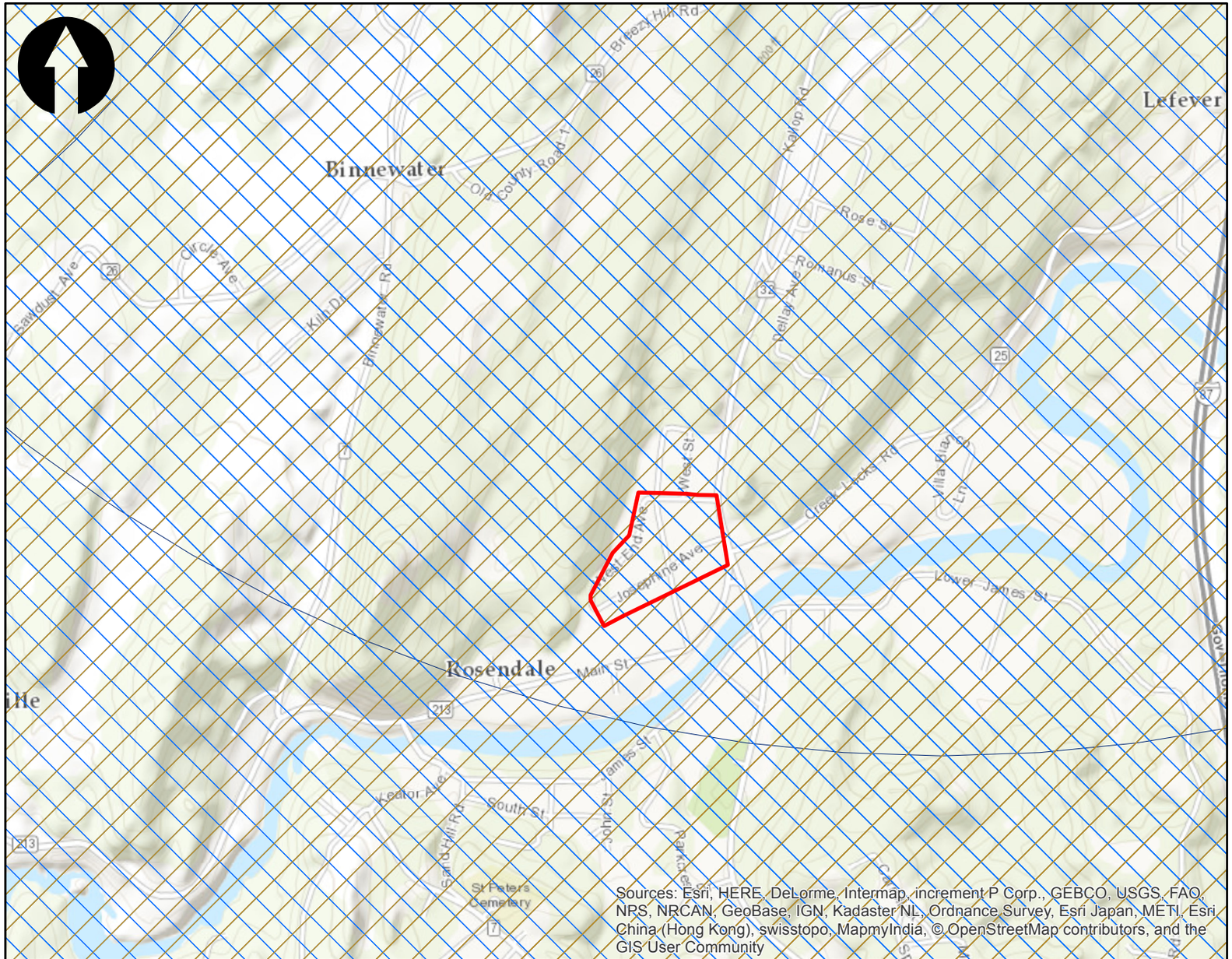
Amanda Bailey
Division of Fish and Wildlife
Amanda.bailey@dec.ny.gov
518-402-8859

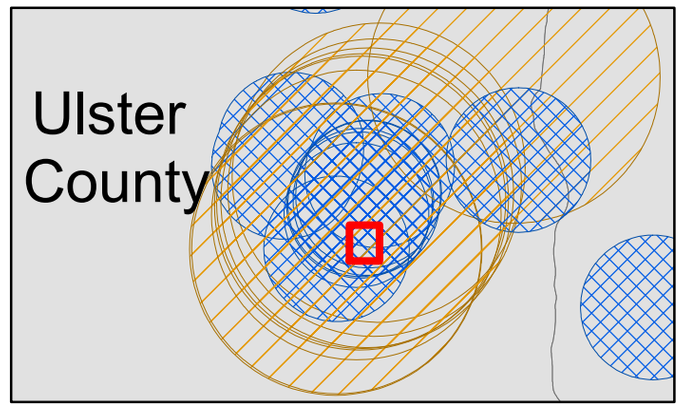
Cc: Alicia Schultz, Governor’s Office of Storm Recovery
May O’Malley, NYSDEC Division of Environmental Permits

NYS Resources Map

Washington Park Stormwater Mitigation
Town of Rosendale, Ulster County

Prepared by AMB on 4/10/2017





Proposed Project Area

Bat Occurrences

Indiana Bat

Northern Long-eared Bat

NEW YORK
STATE OF OPPORTUNITY

Department of Environmental Conservation

0 0.1 0.2 0.4 0.6 0.8 Miles

1 inch = 1,250 feet

Disclaimer: this map was prepared by the NYSDEC using the most current data available. It is deemed accurate but is not guaranteed. NYSDEC is not responsible for any inaccuracies in the data and does not necessarily endorse any interpretations or products derived from the data. This map may contain information that is considered sensitive and therefore the distribution of this map is strictly prohibited.

APPENDIX A
PHASE 1 SUMMER HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Rosendale-Washington Park Date: 4/3/2017

Township/Range/Section: Rosendale, NY

Lat Long/UTM/ Zone: 18 E: 576532.17, N: 4633262.22 Surveyor: A. Bailey, NYS DEC

Brief Project Description

14 trees will be removed in a residential area for the installation of new sewer drains.

Project Area

	Total Acres	Forest Acres		Open Acres
Project				

	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing
Proposed Tree Removal (ac)		Remove 14 trees	

Vegetation Cover Types

Pre-Project	Post-Project
Residential area with scattered individual trees	Residential area with scattered individual trees.

Landscape within 5 mile radius

Flight corridors to other forested areas?
The project does not fall into any flight corridors, although there are corridors within 5 miles.

Describe Adjacent Properties (e.g. forested, grassland, commercial or residencial development, water sources)
Located within the town of Rosendale, and surrounded primarily by commercial & residential development.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

≈.17 miles from Water Williams Preserve WMA.

APPENDIX A
PHASE 1 SUMMER HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): 1

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: no immediate water sources. Rondout Creek is >1000 ft. away.
Pools/Ponds (# and size)		Open and accessible to bats?		
Wetlands (approx. ac.)	Permanent	Seasonal		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50')	Midstory (20-50')	Understory (<20')	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81=100%
	1	1	1	
Dominant Species of Mature Trees				
% Trees w/ Exfoliating Bark	0	0	0	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
		28%	72%	
No. of Suitable Snags		0		

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? no

Additional Comments: while this site is located within 2.5 miles of known Indiana bat hibernacula, the project is taking place entirely within a residential area without forest cover. All trees are live without noticeable exfoliating bark and there is little chance northern or Indiana bats would be roosting or foraging in an area with so much development.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

Figure 1. Aerial view of the project area for the Rosendale-Washington Park project. 14 trees within the residential project area will be removed.

Figure 2. Street trees that will be removed with the installation of new sewer drains.

Figure 3. Street trees that will be removed with the installation of new sewer drains.

Governor's Office of
Storm Recovery

ANDREW M. CUOMO
Governor

LISA BOVA-HIATT
Executive Director

By Electronic Mail

May 11, 2017

Robyn A. Niver
Endangered Species Biologist
U.S. Fish & Wildlife Service
New York Field Office (Region 5)
3817 Luker Rd.
Cortland, NY 13045

Re: Section 7 Project Review - ESA/MBTA/BGEPA Consultation for the Washington Park Stormwater Mitigation Project, Town of Rosendale, Ulster County, New York

Dear Ms. Niver:

The Governor's Office of Storm Recovery (GOSR), acting under the auspices of New York State Homes and Community Renewal's (HCR) Housing Trust Fund Corporation (HTFC), on behalf of the Department of Housing & Urban Development (HUD), is preparing an Environmental Assessment (EA) for the Washington Park Stormwater Mitigation Project ("Proposed Project") which involves the installation of culvert pipes, drainage ditches, swales, catch basins, new storm sewers, a storm sewer manhole, and a pedestrian bridge and ground disturbance and tree removal in the Town of Rosendale, Ulster County, New York. The Proposed Project is located in Washington Park, a residential area located northwest of the intersection of New York State (NYS) Route 32 and NYS Route 213 (see **Attachment 1**). GOSR is acting as HUD's non-federal representative for the purposes of conducting consultation pursuant to Section 7 of the Endangered Species Act.

The purpose of this letter is to provide the U.S. Fish and Wildlife Service – New York Field Office (USFWS) notice of the Proposed Project and to document compliance with Section 7 of the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), as well as the Migratory Bird Treaty Act of 1918 (MBTA) (40 Stat. 755, as amended; 16 U.S.C. 703-712), and the Bald and Golden Eagle Protection Act of 1940 (BGEPA) (54 Stat. 240, as amended; 16 U.S.C. 668-668c).

Program Overview

During Hurricane Irene and Tropical Storm Lee, the Town of Rosendale experienced torrential rains that overwhelmed much of the Town's stormwater infrastructure, but none more so than in the Washington Park neighborhood. The neighborhood flooded from three directions – north, east, and west. From the north, stormwater entered the neighborhood from an inclined area adjacent to Hillside Avenue, overwhelming the roadside drainage ditch, and coursed south, down West Avenue. This stormwater collected at the foot of West Avenue, at its intersection with Washington Avenue, where in normal conditions, the stormwater would enter a

flood control area constructed by the United States Army Corps of Engineers (USACE) located south of the neighborhood. However, given the volume of stormwater caused by the storms, the water overwhelmed the present drainage infrastructure, flooded homes on West and Washington Avenues between West Avenue and NY Route 32, and forced the Town to close the street to traffic. Flooding depths at the low point of Washington Avenue exceeded 3 feet. Fann's Plaza, a commercial retail shopping center that abuts the neighborhood and whose large parking area is typically used as a staging area for emergency vehicles and operations due to its central location, was also hemmed in by stormwater and rendered unsuitable as a staging area.

Most of the residents of the area were stranded until the floodwaters receded. It was then revealed that the stormwater damaged the neighborhood streets, shifted homes from their foundations, filled basements, and damaged undersized culverts installed beneath driveway ingresses all along West End Avenue. Through the NY Rising Community Reconstruction Program process, the Town resolved to address the issues of floodwater mitigation in this neighborhood.

Area of Potential Effect

The Washington Park Stormwater Mitigation Project involves the installation of culvert pipes, drainage ditches, swales, catch basins, new storm sewers, a storm sewer manhole, and a pedestrian bridge in the Town of Rosendale, Ulster County, New York. This will require new ground disturbance and the removal of 14 trees. The Proposed Project is located in Washington Park, a residential area located northwest of the intersection of New York State (NYS) Route 32 and NYS Route. The proposed drainage improvements will effectively convey water during 50-year storm events and alleviate chronic flooding problems. Additionally, this will further protect the residents' public health and safety, safeguard infrastructure, and enhance emergency response operations during severe storm events. The Proposed Project location (Site) is identified on the enclosed street map and USGS topographic map (**Attachment 1**).

Proposed Project Description:

HUD Community Development Block Grant-Disaster Recovery (CDBG-DR) funding is proposed for the improvement of two defined drainageways that cross through the Washington Park area. Runoff from a hill/mountain to the northeast and runoff from the hillside adjacent to Fann's Plaza are conveyed by storm sewers to an extant USACE ponding area located on the south side of the Site (hereafter referred to as the Eastern Drainage System). Runoff from a hill/mountain to the west is conveyed via a swale at the base of the mountain to a storm sewer system that crosses under West End Avenue and Josephine Avenue to an existing USACE ponding area on the west side of Central Avenue (hereafter referred to as the Western Drainage System). The Proposed Project engineering design plans are included with this letter for your review (**Attachment 2**). **Attachment 3** shows the mapped location of the trees to be removed.

Improvement of the Eastern Drainage System will involve the construction of the following: a drainage swale along Hillside Avenue; a new storm sewer along West Street (from Hillside Avenue to Washington Avenue); a new storm sewer on Washington Avenue (from West Street to where it crosses under Washington Avenue); and a new storm sewer from Washington Avenue to the USACE ponding area. An existing USACE ponding area will also be regraded to provide a uniform alignment and cross sectional area that is consistent with the original USACE Rondout Creek Flood Control design. Proposed Eastern Drainage System improvements will include the installation of 181 linear feet (LF) of 48" diameter HDPE culvert pipe, 46 LF of 36" diameter HDPE culvert pipe, 745 LF of 24" diameter HDPE culvert pipe, 46 LF of 18" diameter HDPE culvert pipe, nine catch basins, and one storm sewer manhole. There are a total of **eight trees** located east of NYS Route 32 and south of Washington Avenue to be removed for project construction. These trees are situated between residential and commercial properties.

Improvement of the Western Drainage System will involve the construction of a drainage swale along the mountainside from the intersection of Central Avenue and Hillside Avenue to SBL# 62.82-1-4 (37 West End Avenue) and a new storm sewer from SBL# 62.82-1-4 (37 West End Avenue) to the existing USACE ponding area on the south side of Josephine Avenue. The Western Drainage System will be designed with a filter fabric lined trench and one perforated 30" HDPE pipe to provide positive relief of any potential shallow groundwater levels. Shallow groundwater would drain by gravity through a one-foot thick stone layer under the pipe and the perforated pipe. Proposed Western Drainage System improvements will include the installation of 1,002 LF of 30" diameter HDPE culvert pipe (dual culvert 501 LF) and five catch basins. The proposed mountainside drainage swale crosses through nine private properties. During construction, **four trees** will be removed from West End Avenue and **two trees** will be removed on Josephine Avenue, where the proposed drainage system would intersect the roadway. These trees are located in the right-of-way adjacent to residential properties. Temporary construction easements and permanent drainage maintenance easements will have to be obtained. The Proposed Project engineering design plans are included with this letter for your review (**Attachment 2**).

Tree Removal and Habitat Assessment

The Proposed Project activities include the **removal of 14 trees** in a residential area for the installation of new stormwater sewer drains. Because the Site is located within 2.5 miles of known Indiana Bat hibernacula, a Phase I Summer Habitat Assessment was completed for the 14 trees to be removed (**Attachment 4**). During the Summer Habitat field inspection, it was confirmed that the Proposed Project is taking place entirely within a residential area without forest cover. All trees proposed for removal are live without noticeable exfoliating bark. Therefore, due to the lack of contiguous forest within this area of residential development, there is little chance that Northern Long-eared or Indiana Bats would be roosting or foraging in the area. Tree removal is anticipated to occur during the **active season** but outside of the June to July pup season. The Assessment includes pictures of the trees to be removed in **Attachment 4**, and a figure showing the locations of trees proposed for removal is included in **Attachment 3**.

ESA, Migratory Bird Treaty Act, and Bald and Golden Eagle Protection Act Species:

The USFWS, New York Ecological Services Field Office was contacted through the Information, Planning, and Conservation System (IPaC) regarding the potential presence of species under the jurisdiction of the USFWS within the Proposed Project area. The IPaC Resource List identified two threatened and one endangered species that is potentially associated with the Site: the threatened Northern Long-eared Bat (NLEB) (*Myotis septentrionalis*), the threatened Bog Turtle (*Clemmys muhlenbergii*), and the endangered Indiana Bat (*Myotis sodalis*) (see **Attachment 5**). The Resource List indicated that no critical habitats are within the Proposed Project area. The IPaC review also indicated that there are several migratory birds of concern that could potentially be affected by the Proposed Project.

GOSR requested that the NY Natural Heritage Program (NYNHP) provide any records of occurrence of NYS-listed species in the vicinity of the Site. The response received from the NYNHP on March 24, 2017, states that the NLEB and Indiana Bat hibernaculum has been documented about 0.5 mile from the Site. Individual animals may travel 2.5 miles or more from documented locations. The main impact of concern for bats is the removal of potential roost trees (See attached **New York Natural Heritage Program Review Response, Attachment 6**).

ESA -Analysis and Determination of Effects:

Northern Long-eared Bat (NLEB) (*Myotis septentrionalis*) and Indiana Bat (*Myotis sodalis*)

On April 10, 2017, NYSDEC provided a jurisdictional response for the Proposed Project and stated: *the project area is located within occupied habitat for both the Indiana bat and the NLEB. The project area is within 2.5 miles of multiple hibernacula occupied by both species of bat, the closest of which is approximately 0.70 miles (1,130 meters) from the project location. The major concern for these species in relation to this project would be the destruction of potential swarming and/or staging habitat and potential roosts through tree clearing. Because of the proximity of the project area to known winter hibernacula, any tree clearing should be conducted between November 1 and March 31, when bats are inactive in hibernation sites. DEC also recommends that all snag and cavity trees, as well as any trees within 0.25 miles of a hibernacula entrance, remain uncut, unless their removal is necessary for protection of human life and property.*

If the restrictions listed above cannot be followed, additional surveys may be required. If surveys suggest potential presence of listed species, an incidental take permit may be required. The DEC Region 3 office should be contacted to discuss the potential for an incidental take permit, as well as specifics regarding bat occurrences and the location of hibernacula in the area.

The Proposed Project area is located within occupied habitat for both the Indiana Bat and the NLEB and is within 2.5 miles of multiple hibernacula occupied by both species of bat, the closest of which is approximately 0.70 miles (1,130 meters) from the Proposed Project location. DEC stated that any tree clearing should be conducted between November 1 and March 31. However, **this timing restriction cannot be complied with due to the urgent need for flood control measures to protect the residents' public health and safety, safeguard housing and infrastructure, and enhance emergency response operations during severe storm events as well as minimize construction costs and delays**. This Proposed Project will not cause a change in land use, it only involves stormwater drainage improvements with all 14 trees that are to be removed occurring in a residential area without forest cover. In addition, the Phase I Summer Habitat Assessment concluded that all 14 trees, live and without noticeable exfoliating bark or cavities, were unlikely to provide roosting habitat for Indiana Bats or Northern Long-eared Bats. However, because of the Site's proximity to known hibernacula, GOSR recognizes that there is the potential for listed bat species to be roosting in the area. Hence, **appropriate conservation measures will be taken** to ensure that Indiana Bats and NLEBs are not directly impacted by tree cutting. Since the Proposed Project requires the removal of a relatively small number of trees, it allows for emergence surveys to be potentially conducted prior to tree removal. Therefore, GOSR will ensure an emergence survey will be conducted at each tree the evening before tree cutting to determine the presence or absence of listed bat species.

Emergence Survey

Following coordination and consultation with USFWS, an emergence survey will be completed for all 14 trees the evening before tree cutting is to take place. The surveys will follow USFWS guidance outlined in the 2016 Indiana Bat Summer Survey Guidelines. Since bat activity is affected by weather, emergence surveys will only be conducted if temperatures are above 50°F, wind speeds are below 9 mph, and there is no precipitation. During the survey, biologists will have an ultrasonic bat detector to aid in the differentiation of high and low frequency bat species that may be using the area. The results of each survey will be submitted to USFWS and DEC. The survey will determine the absence or presence of the NLEB and Indiana Bat. The following actions will be taken after the survey:

No NLEB or Indiana Bat Identified

If no bats are observed during the emergence study, tree cutting will be completed the following day and GOSR will come to a **may affect, but not likely to adversely affect** for both bat species. GOSR recognizes that the Proposed Project may result in a loss of potential habitat in proximity to known hibernacula. In addition, the Proposed Project will result in temporary increases in noise, vibration, lighting, vehicle use, and general levels of human activity. However, we believe that there is not likely to be an adverse impact on bats based on:

- All trees are live, do not have exfoliating bark or cavities, and are surrounded by development. Thus, they are unlikely to provide roosting habitat to listed bat species in the immediate future;
- There will be no land use changes such as conversion of forested habitat to development;
- There will be no impacts to forest patches with known roosting and/or foraging use (**Attachment 3**);
- There will be minimal impact to all forest patches (see attached aerial photograph in **Attachment 3** showing locations of trees to be removed and forest patches);
- The trees and Proposed Project area do not fall into any flight corridors;
- The Proposed Project area is located in the Town of Rosendale and surrounded primarily by commercial and residential development;
- The existing presence of noise and human activity (a shopping center, housing, etc.) within close of proximity of trees;
- Tree removal will not result in temporary or permanent loss, degradation, and/or fragmentation of roosting, foraging, swarming, commuting, or wintering habitat;
- Any potential effects are insignificant because the habitat is not a preferred habitat, tree cutting is limited, and no bats occupy the trees to be removed and the effects are undetectable, not measurable, or cannot be evaluated;
- Bright flagging will be used to demarcate trees to be removed; and
- The Proposed Project will not result in increased light or use of chemicals.

NLEB or Indiana Bat Identified

If NLEB and/or Indiana Bats are observed emerging from the trees to be removed, the USFWS will be contacted immediately for further assistance. Tree removal activities will be postponed until mitigation actions can be implemented that eliminate any incidental takes or adverse impacts to the listed bat species.

Bog Turtle (*Clemmys muhlenbergii*)

There is no habitat for the Bog Turtle at the Site; therefore, the Proposed Project would be unlikely to affect this species. Bog Turtles usually occur in small, discrete populations, generally occupying open-canopy, unpolluted, herbaceous sedge meadows and fens bordered by wood areas. Fens are freshwater, bog-like wetland that are a mosaic of open and shrub habitats with grasses, sedges, and small spring-fed streams (source: https://www.fws.gov/northeast/ecologicalservices/turtle/pdf/Bogturtle.pdf).

MBA

GOSR has determined that the Proposed Project would have no significant adverse impact on migratory birds or their habitat. It is anticipated that passerine birds would temporarily leave the area during construction due to noise and disturbance. Extensive areas of high quality woodland habitat are available in Ulster County (see **Attachment 3**).

BGEPA

The IPaC review process identified the bald eagle as having year-round habitat in Ulster County that may be potentially affected by activities in the Proposed Project area. GOSR has determined that the Proposed Project would have no significant adverse impact on bald eagles. The Proposed Project area is not located within the vicinity of documented bald eagle breeding. As with other migratory birds, foraging bald eagles may temporarily avoid the area during construction due to noise and disturbance.

Compliance

According to the USFWS IPaC Trust Resource List and Official Species List, there is one endangered and two threatened species that are potentially associated with the Site: the endangered Indiana Bat and the threatened Northern Long-eared Bat and threatened Bog Turtle (see **Attachment 5**). In addition, there are several migratory birds of concern that could potentially be affected by the Proposed Project (see **Attachment 5**). The official species list for the Proposed Project indicated that there is no critical habitat in the Proposed Project area (see **Attachment 5**). However, there is no habitat for the Bog Turtle in the Proposed Project area and migratory birds are expected to leave the Proposed Project area in response to construction activities. Therefore, the Proposed Project is likely to have no effect on these species, the Bog Turtle and migratory birds of concern.

GOSR will ensure that an emergence survey is conducted to determine the presence or absence of NLEB and Indiana Bat in accordance with USFWS guidance. If no bats are observed, tree cutting will be completed the following day and GOSR will come to a may affect, but not likely to adversely affect for both bat species. If either bat is observed, mitigation actions will be identified to alleviate any potential adverse effects to the listed bat species with consultation and coordination with the USFWS. GOSR has determined that the tree removal **may affect, but is not likely to adversely affect** based on the criteria presented above and implementation of mitigation actions, if needed, to prevent any adverse effects to the listed bat species if bats are observed during the emergence survey. GOSR is submitting the above information to request acknowledgement from USFWS that they have no objections to the determination made by GOSR that the Proposed Project **may affect, but is not likely to adversely affect** ESA species under USFWS jurisdiction. GOSR understands that the USFWS presumes that all activities will be implemented as described herein. GOSR will promptly report any departures from the described activities to the New York Field Office.

If you have questions or require additional information regarding this request, please contact Lori A. Shirley at (518) 474-0755 or Lori.Shirley@nyshcr.org. Thank you for your time and consideration.

Sincerely,

Lori A. Shirley
Certifying Officer
NYS Governor's Office of Storm Recovery

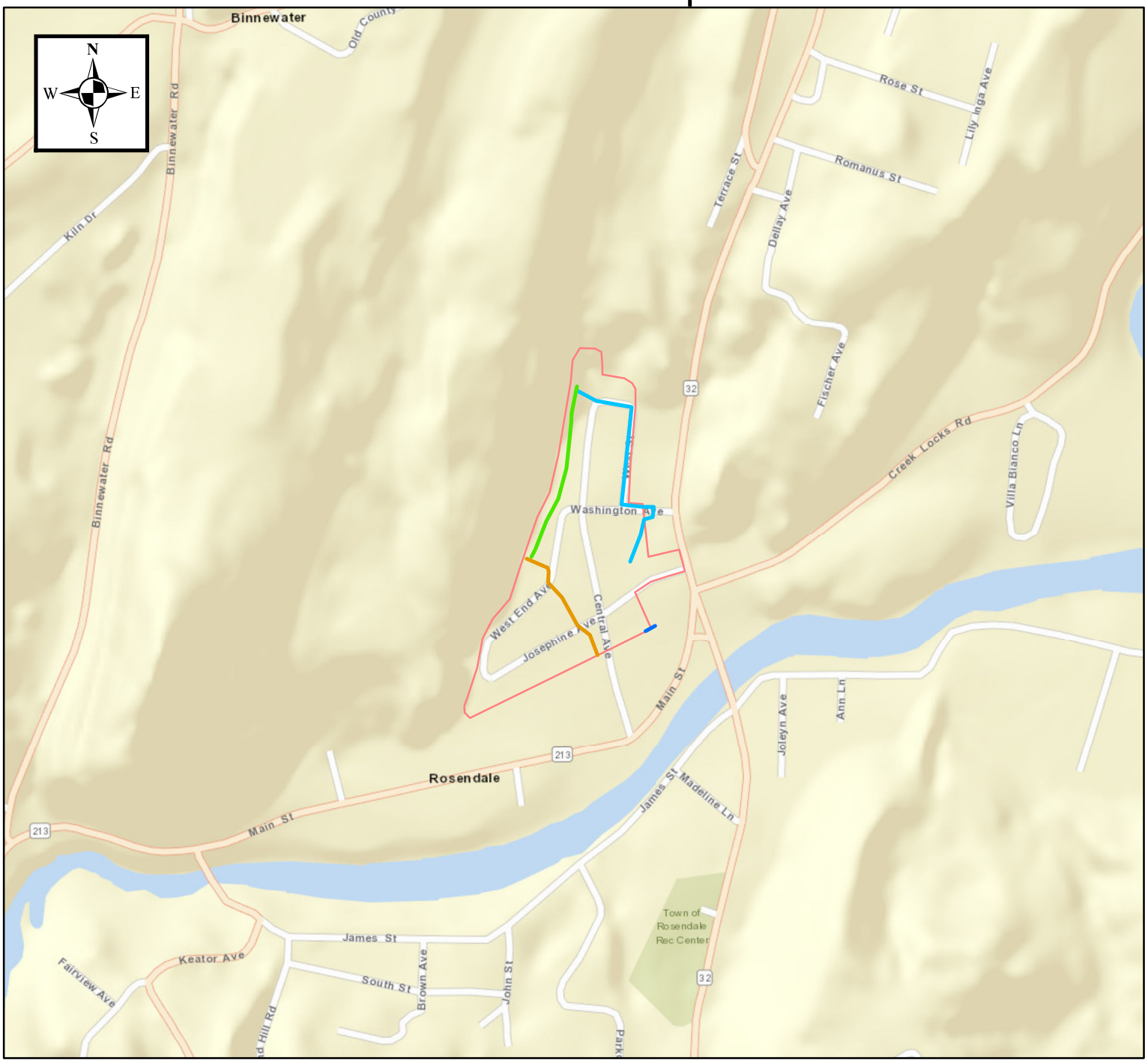
Attachments:

1 – Figures
2 – Design Plans
3 – Tree Removal Figure
4 – Habitat Assessment
5 – IPaC Resource List and Official Species List
6 – NHP Project-specific Response

Attachment 1

Street Map,
Topographic Map,
& Aerial Photograph

Location Map



TECTONIC

Practical Solutions, Exceptional Service

0 500 1,000 2,000 Feet

1:10,000

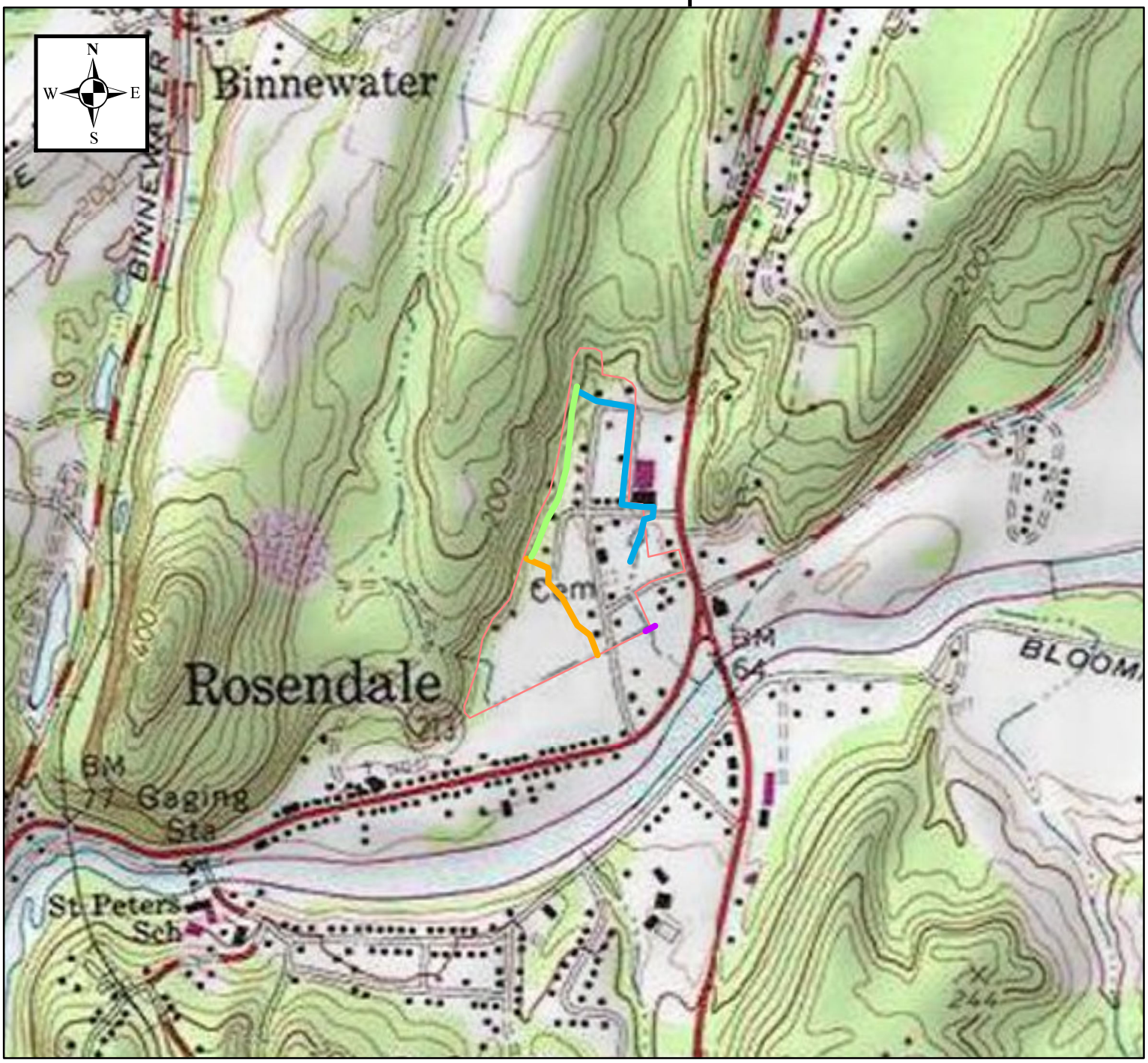
Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

Legend

Approximate Work Locations

- **Eastern Drainage System**
- **Mountain Swale**
- **Western Drainage System**
- **Pedestrian Bridge**
- **Washington Park (Approximate Boundary)**

Location Map



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Legend

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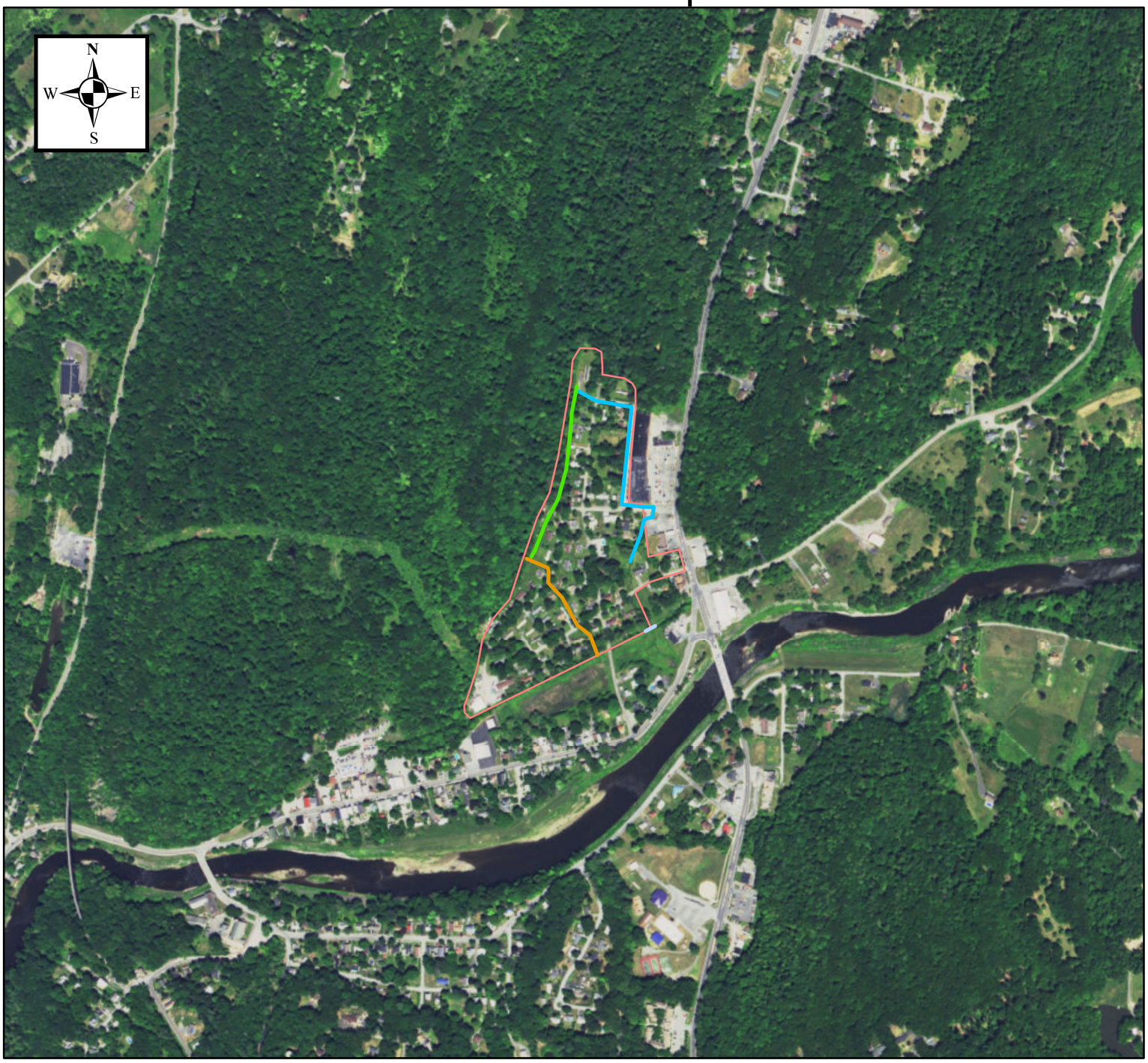

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Washington Park Neighborhood
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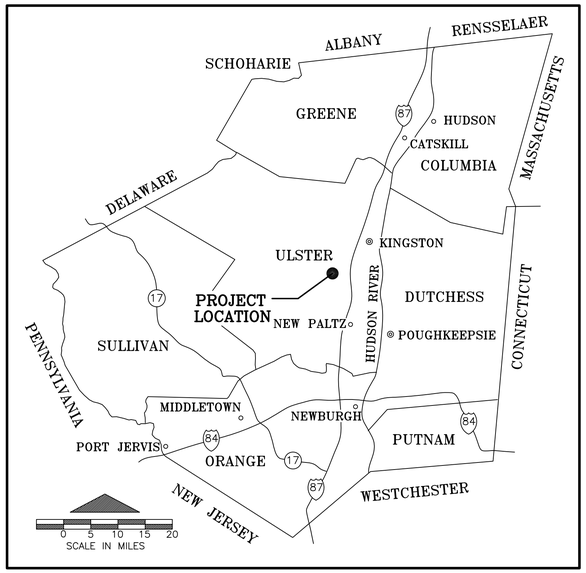
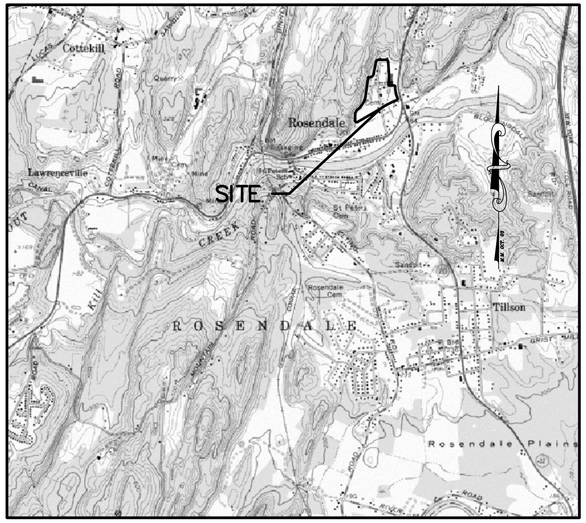


GENERAL LOCATION MAP

AERIAL VIEW



LOCATION MAP
ROSENDALE QUADRANGLE
7.5' MINUTE USGS TOPOGRAPHIC MAP
SCALE: 1" = 2000'

CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION

NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNOR'S OFFICE OF STORM RECOVERY

TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

TOWN OFFICIALS

JEANNE L. WALSH, TOWN SUPERVISOR

TOWN COUNCIL
JOHN P. HUGHES
JENNIFER METZGER
CHRISTOPHER PRYLOPSKI
FRANK KLEPEIS
ROBERT S. GALLAGHER, HIGHWAY SUPERINTENDENT
MANDY CONSTABLE, TOWN CLERK

FEBRUARY 2017

FINAL DESIGN FOR AGENCY REVIEW

SHEET INDEX

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	KEY MAP
3.	EXISTING CONDITIONS 1, EASTERN DRAINAGE SYSTEM
4.	EXISTING CONDITIONS 2, EASTERN DRAINAGE SYSTEM
5.	SELECTIVE DEMOLITION, EASTERN DRAINAGE SYSTEM
6.	PLAN AND PROFILE 1, EASTERN DRAINAGE SYSTEM
7.	PLAN AND PROFILE 2, EASTERN DRAINAGE SYSTEM
8.	EXISTING CONDITIONS, WESTERN DRAINAGE SYSTEM
9.	SELECTIVE DEMOLITION, WESTERN DRAINAGE SYSTEM
10.	PLAN AND PROFILE, WESTERN DRAINAGE SYSTEM
11.	EXISTING CONDITIONS, MOUNTAIN SWALE
12.	GRADING PLAN, MOUNTAIN SWALE
13.	DETAILS
14.	EROSION AND SEDIMENT CONTROL – EAST
15.	EROSION AND SEDIMENT CONTROL – WEST
16.	EROSION AND SEDIMENT CONTROL – MOUNTAIN SWALE

BRINNIER AND LARIOS, P.C.
PROFESSIONAL ENGINEERS AND LAND SURVEYORS
67 MAIDEN LANE
KINGSTON, NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 056741 STATE OF NEW YORK

LICENSED LAND SURVEYOR CHRISTOPHER J. ELLI 49629 STATE OF NEW YORK

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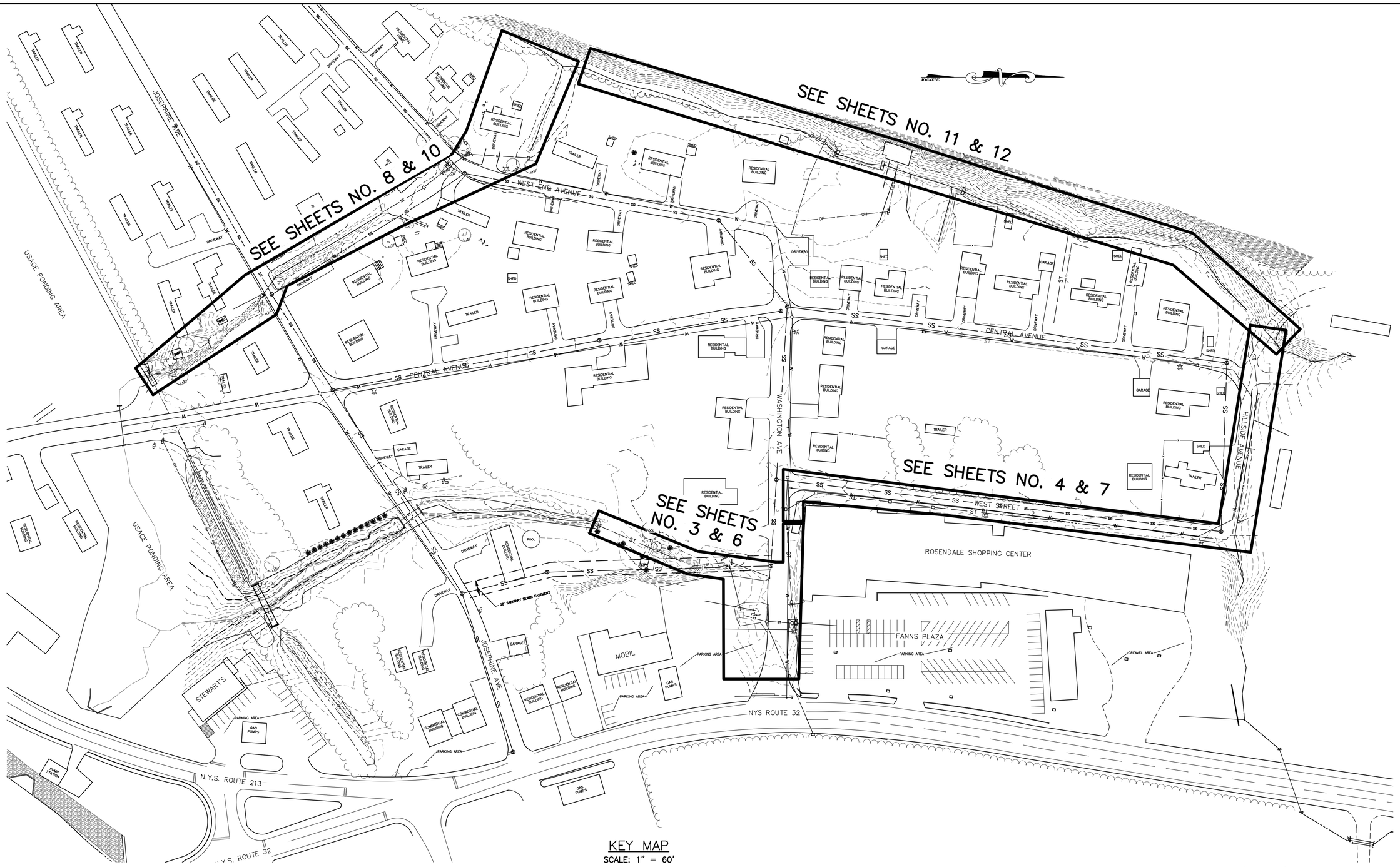
811 Know what's below. Call before you dig.



KEY MAP
SCALE: 1" = 60'

KEY MAP
CONTRACT NO. TR-171

NOTE:
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GRAPHIC SCALE IN FEET
60 0 60

LICENSED LAND SURVEYOR
CHRISTOPHER J. TELL
49629
STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER
BENJAMIN M. LARIOS
058747
STATE OF NEW YORK

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WASHINGTON PARK STORMWATER MITIGATION

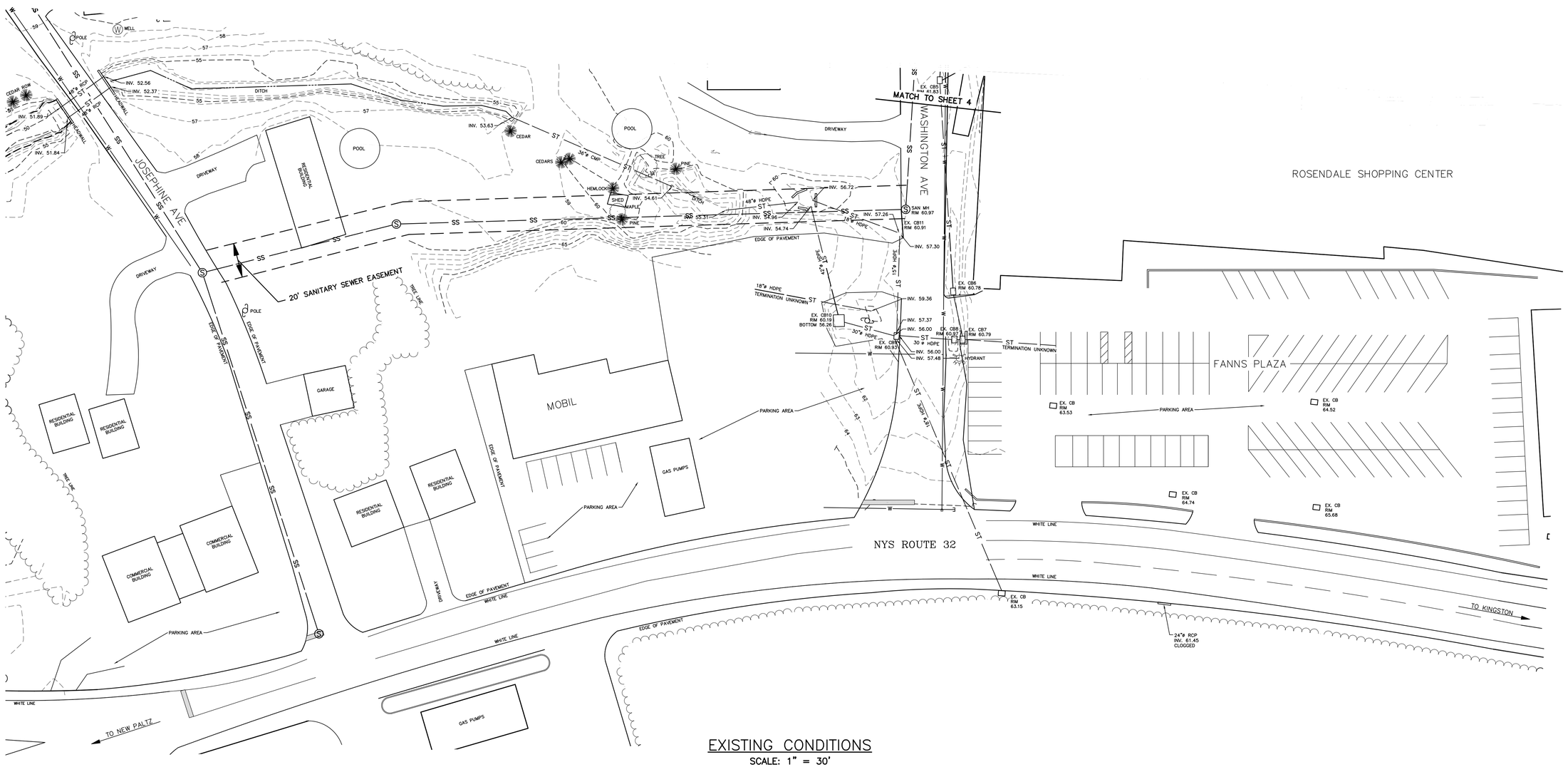
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY

TOWN OF ROSENDALE | ULSTER COUNTY | NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 60'	FEB. 2017		2 OF 16
	DWG RJS	CHK JEM	



EXISTING CONDITIONS

SCALE: 1" = 30'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
X	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:

1. FIELD SURVEY PERFORMED BY BRINNIER AND LARIOS, P.C. ON JUNE 15, 2016, AUGUST 29, 2016 AND NOVEMBER 23, 2016.
2. USACE PONDING AREA BOUNDARY FROM USACE ROSENDALE FLOOD CONTROL PROJECT DRAWING NUMBER CC-RC-209, SHEET 9 OF 79

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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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EXISTING CONDITIONS 1
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
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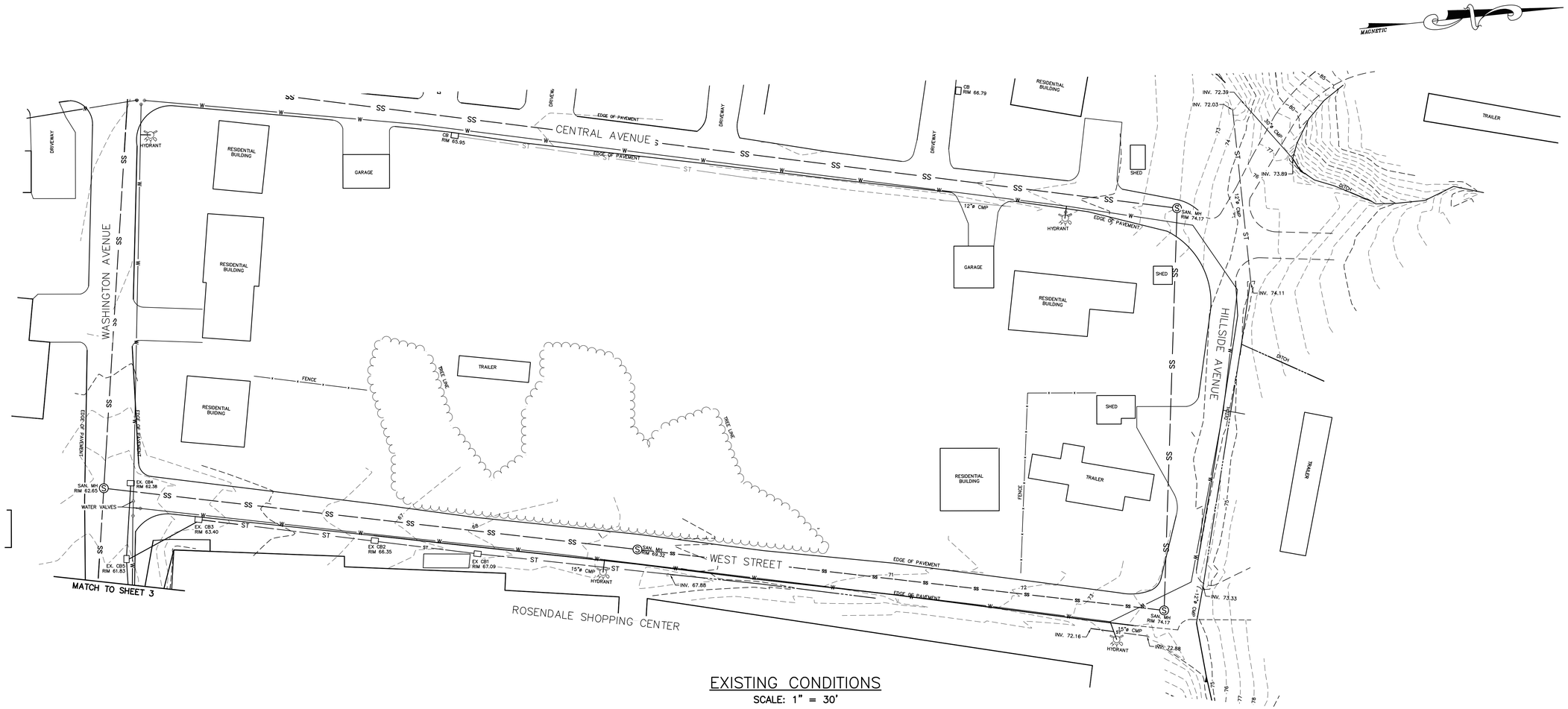
	DWG RJS	CHK JEM	



EXISTING CONDITIONS

SCALE: 1" = 30'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
℄	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIG M. LARIOS 058747 STATE OF NEW YORK

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EXISTING CONDITIONS 2
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TS-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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67 MAIDEN LANE KINGSTON, N.Y.
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SCALE	DATE		SHEET NO.
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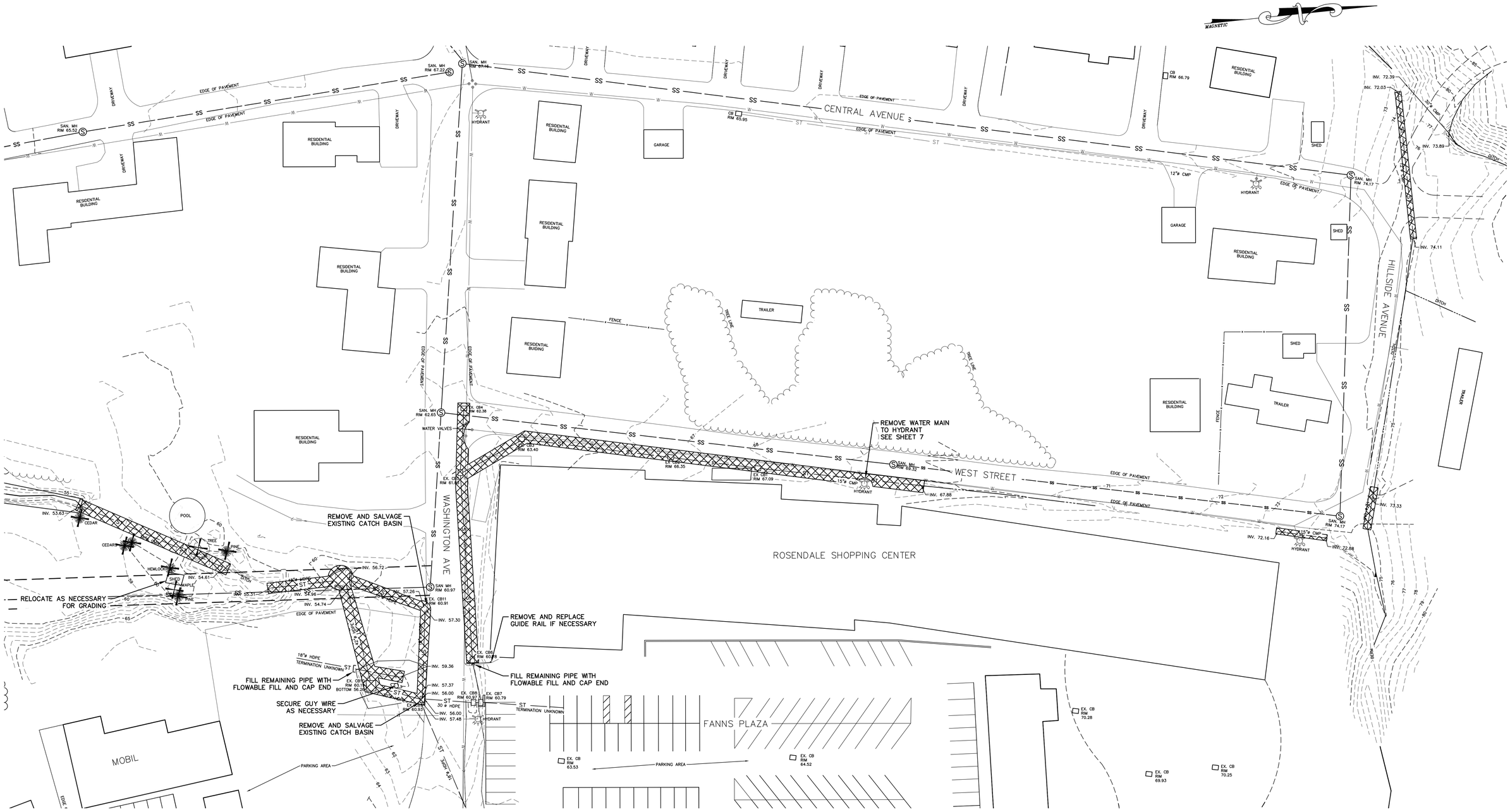
	DWG RJS	CHK JEM	



SELECTIVE DEMOLITION PLAN

SCALE: 1" = 30'

SELECTIVE DEMOLITION PLAN
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TS-171

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	PROPOSED DEMOLITION
	PROPOSED TREE REMOVAL

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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER BENNO M. LARIOS 058741 STATE OF NEW YORK

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WASHINGTON PARK STORMWATER MITIGATION
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NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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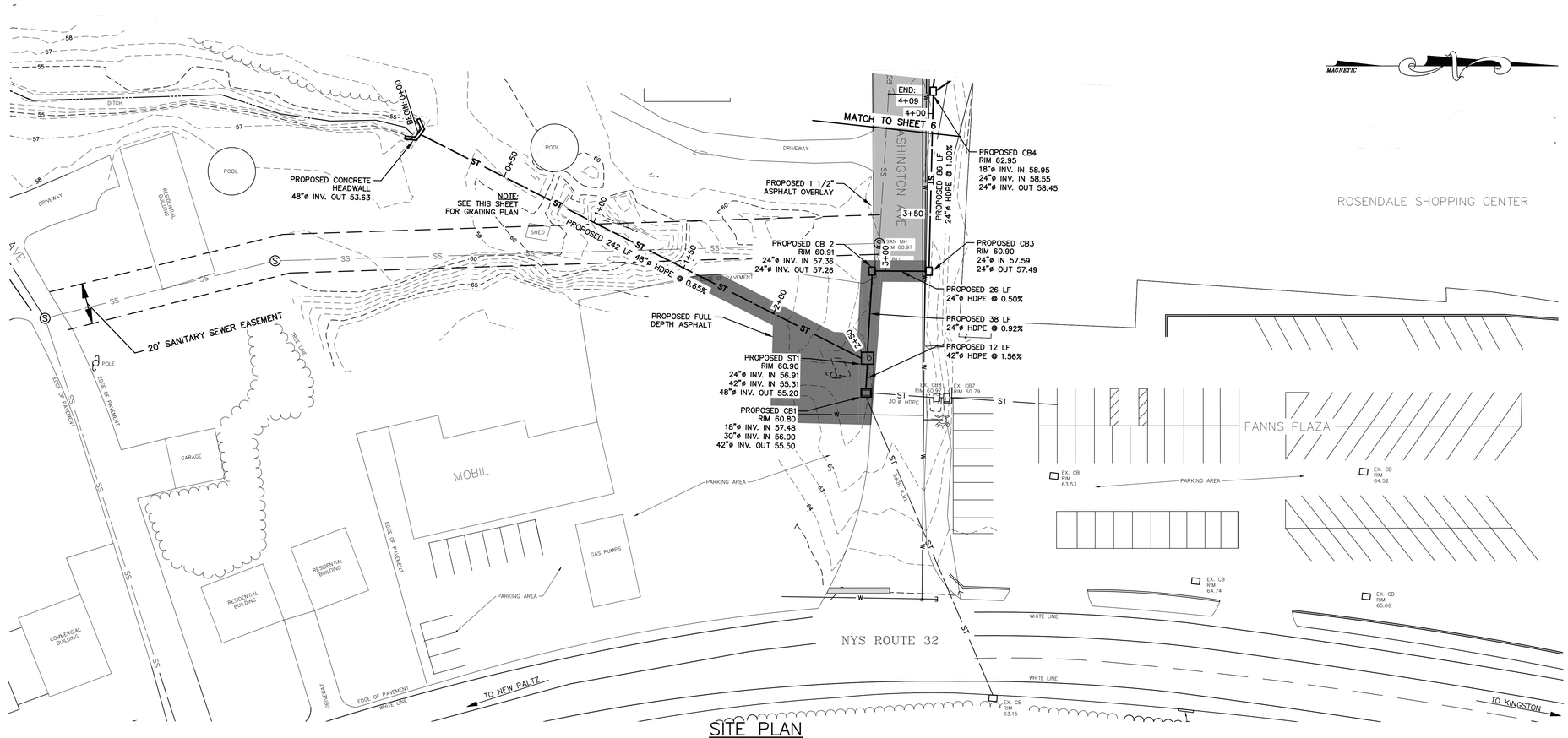
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

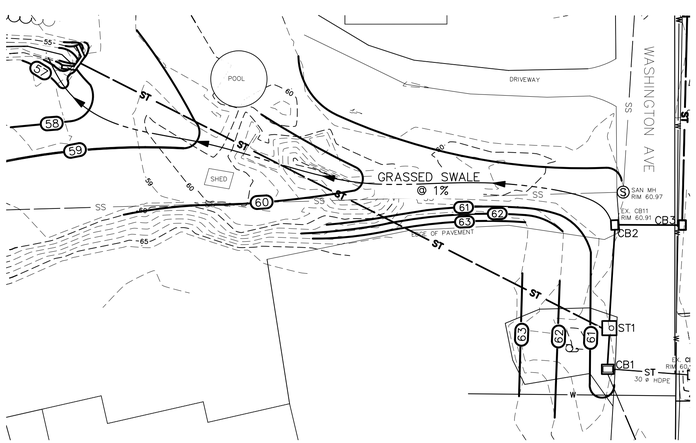
SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		5 OF 16
	DWG RJS	CHK JEM	

DRAINAGE STRUCTURE SCHEDULE					
STRUCTURE	TYPE (ID DIMENSIONS)	RIM ELEV. (FT)	INSIDE HEIGHT (FT)	STORM PIPING	INVERT ELEV. (FT)
ST1	6'x5' MANHOLE W 24" COVER	60.90	6 +/-	24"Ø HDPE IN	56.91
				42"Ø HDPE IN	55.31
				48"Ø HDPE OUT	55.20
CB1	4'x5' CATCH BASIN W F&G	60.80	6 +/-	18"Ø HDPE IN	57.48
				30"Ø HDPE IN	56.00
				42"Ø HDPE OUT	55.50
CB2	4'x4' CATCH BASIN W F&G	60.91	4 +/-	24"Ø HDPE IN	57.36
				24"Ø HDPE OUT	57.26
CB3	4'x4' CATCH BASIN W F&G	60.90	4 +/-	24"Ø HDPE IN	57.59
				24"Ø HDPE OUT	57.49
CB4	4'x4' CATCH BASIN W F&G	62.95	5 +/-	18"Ø HDPE IN	58.95
				24"Ø HDPE IN	58.55
				24"Ø HDPE OUT	58.45

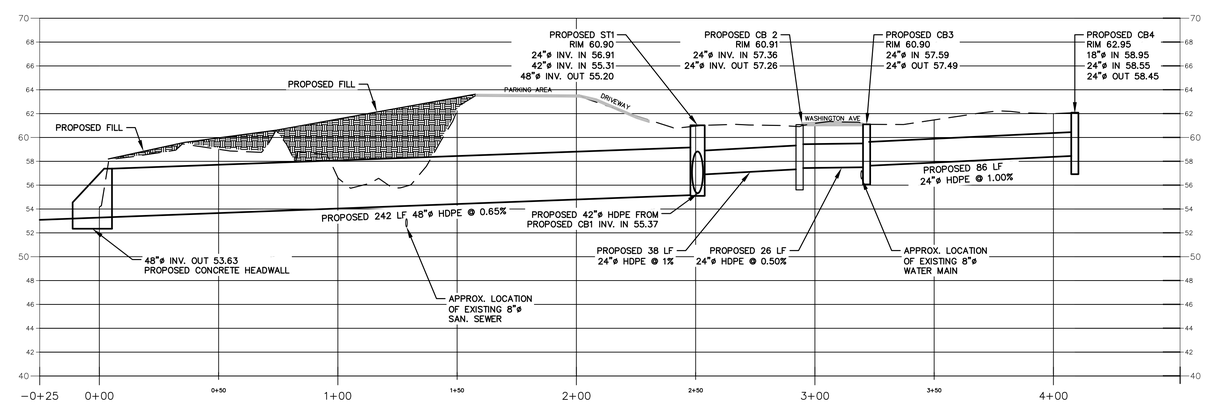
NOTES:
1. SEE PLAN AND PROFILE DRAWINGS FOR ORIENTATION OF PIPES.
2. ALL 4' CB STRUCTURES SHALL HAVE 30" X 48" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #7585 F&G ASSEMBLY OR APPROVED EQUAL.
3. ALL 3' CB STRUCTURES SHALL HAVE 24" X 24" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #5423 F&G ASSEMBLY OR APPROVED EQUAL.



SITE PLAN
SCALE: 1" = 30'



GRADING PLAN
SCALE: 1" = 30'



PROFILE OF STORM SEWER
SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

PLAN AND PROFILE 1
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

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LEGEND

50	CONTOURS (MINOR)		UTILITY POLE	ST	PROPOSED STORM SEWER
52	CONTOURS (MAJOR)		EXISTING HYDRANT		PROPOSED CATCH BASIN
PL	PROPERTY LINE	EX. CB1	EXISTING CATCH BASIN	58	PROPOSED CONTOUR
SS	EXISTING SANITARY SEWER	S	SANITARY MANHOLE		PROPOSED FULL DEPTH ASPHALT PAVEMENT
ST	EXISTING STORM SEWER	M	MANHOLE		PROPOSED 1 1/2" ASPHALT OVERLAY
W	EXISTING WATER LINE				
	DITCH				
	APPROX. TREE LINE				
x	FENCE				

GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER V. FELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER BERNIE M. LARIOS 058747 STATE OF NEW YORK

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WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
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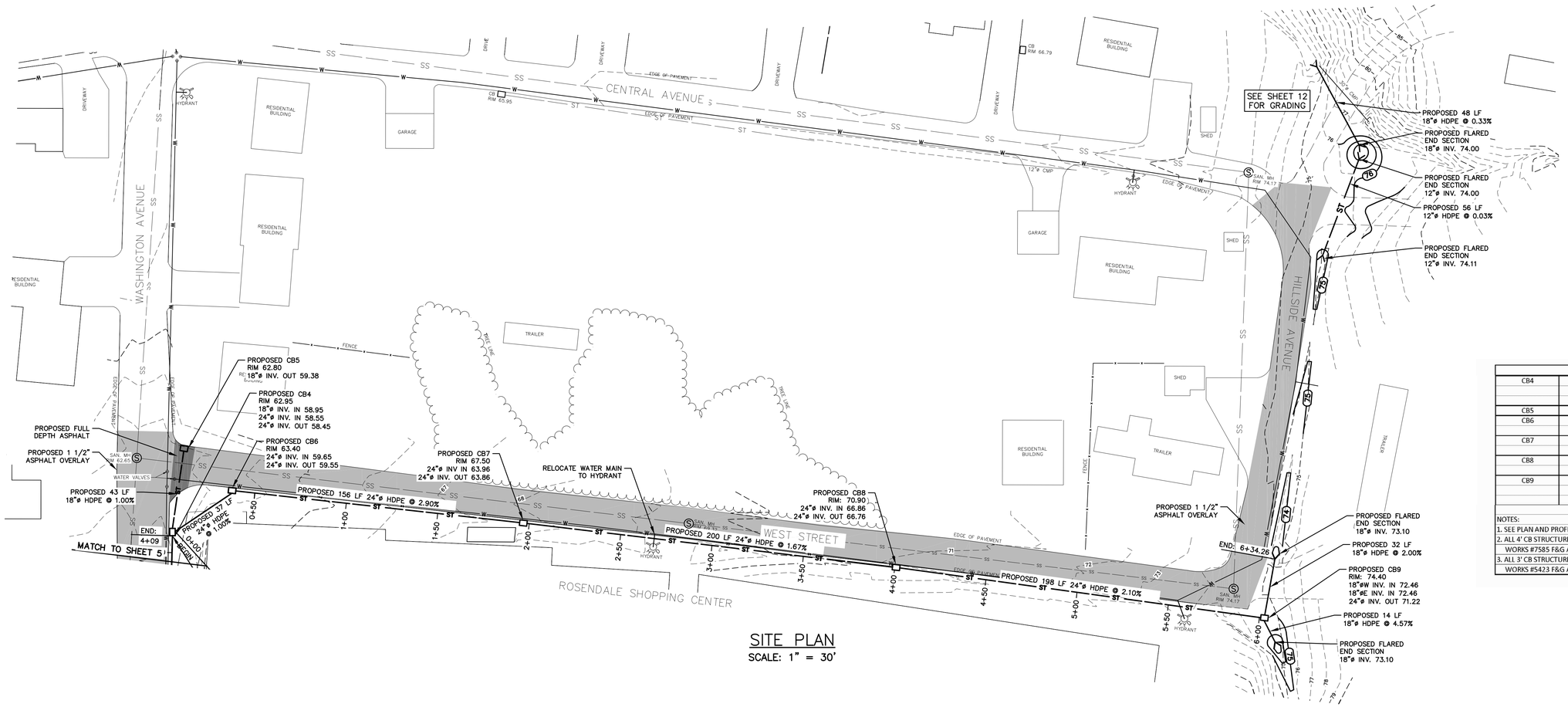
	DWG. RJS	CHK. JEM	



SITE PLAN

SCALE: 1" = 30'

DRAINAGE STRUCTURE SCHEDULE					
CB4	4'x4' CATCH BASIN W F&G	62.95	5 +/-	18"Ø HDPE IN	58.95
				24"Ø HDPE IN	58.55
				24"Ø HDPE OUT	58.45
CB5	3'X3' CATCH BASIN W F&G	62.80	4 +/-	24"Ø HDPE OUT	59.38
CB6	4'x4' CATCH BASIN W F&G	63.40	4 +/-	24"Ø HDPE IN	59.65
				24"Ø HDPE OUT	59.55
CB7	4'x4' CATCH BASIN W F&G	67.50	4 +/-	24"Ø HDPE IN	63.96
				24"Ø HDPE OUT	63.86
CB8	4'x4' CATCH BASIN W F&G	70.90	5 +/-	24"Ø HDPE IN	66.86
				24"Ø HDPE OUT	66.76
CB9	4'x4' CATCH BASIN W F&G	74.40	4 +/-	18"Ø HDPE IN	72.46
				18"Ø HDPE IN	72.46
				24"Ø HDPE OUT	71.22

NOTES:
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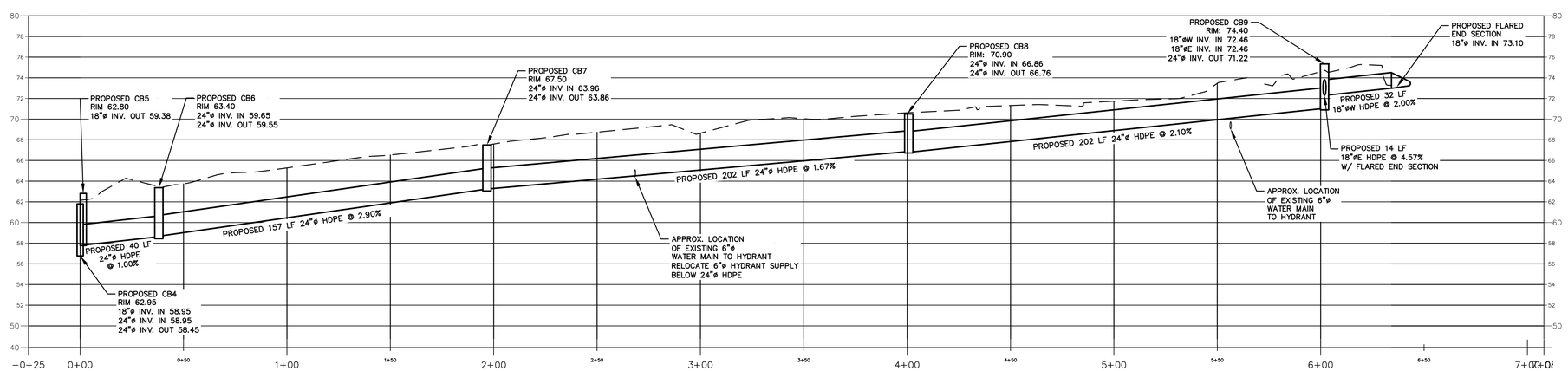

PROFILE OF STORM SEWER

SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR
- PROPOSED FULL DEPTH ASPHALT PAVEMENT
- PROPOSED 1 1/2" ASPHALT OVERLAY

GRAPHIC SCALE IN FEET
30 0 30

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PLAN AND PROFILE 2
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

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67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		7 OF 16
	DWG RJS	CHK JEM	

EXISTING CONDITIONS

SCALE: 1" = 30'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:

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30 0 30

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LICENSED PROFESSIONAL ENGINEER SERVIS M. LARIOS 058747 STATE OF NEW YORK

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EXISTING CONDITIONS
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

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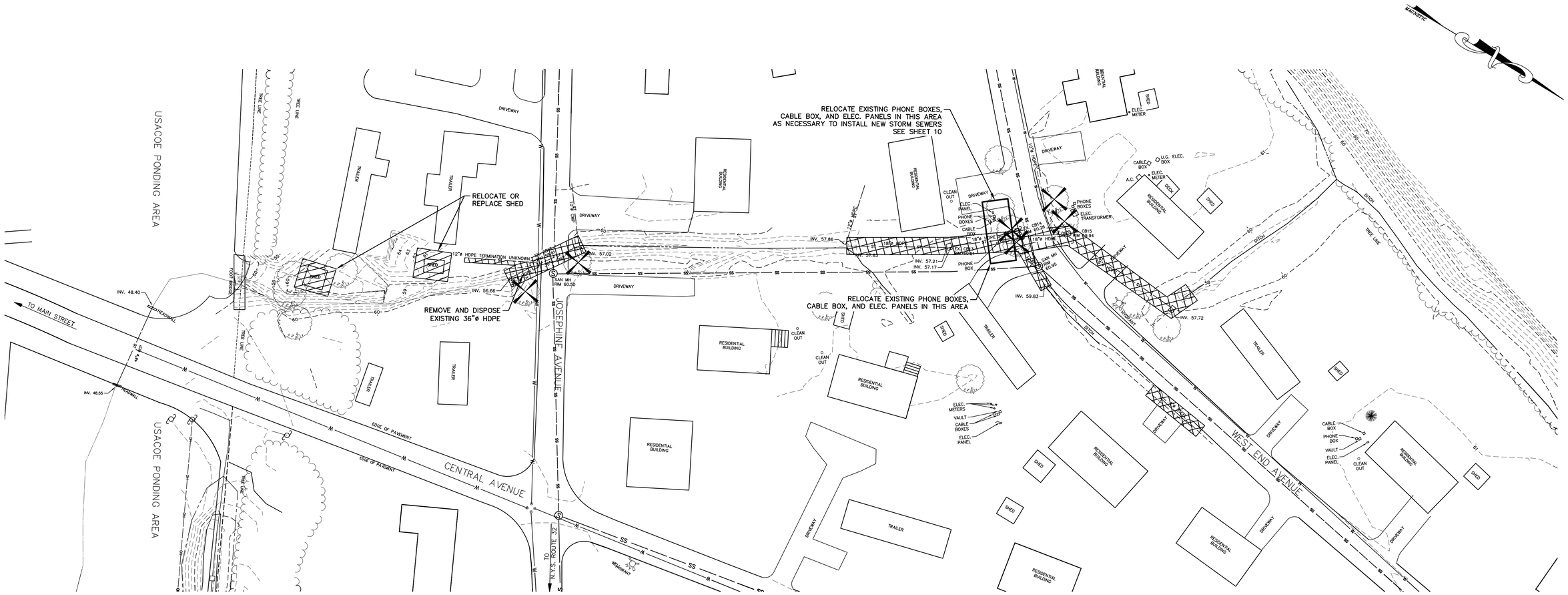

SELECTIVE DEMOLITION PLAN

SCALE: 1" = 30'

LEGEND

CONTOURS (MINOR)	UTILITY POLE
CONTOURS (MAJOR)	EXISTING HYDRANT
PROPERTY LINE	EXISTING CATCH BASIN
EXISTING SANITARY SEWER	SANITARY MANHOLE
EXISTING STORM SEWER	MANHOLE
EXISTING WATER LINE	PROPOSED DEMOLITION
DITCH	PROPOSED TREE REMOVAL
APPROX. TREE LINE	
FENCE	

NOTE:
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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

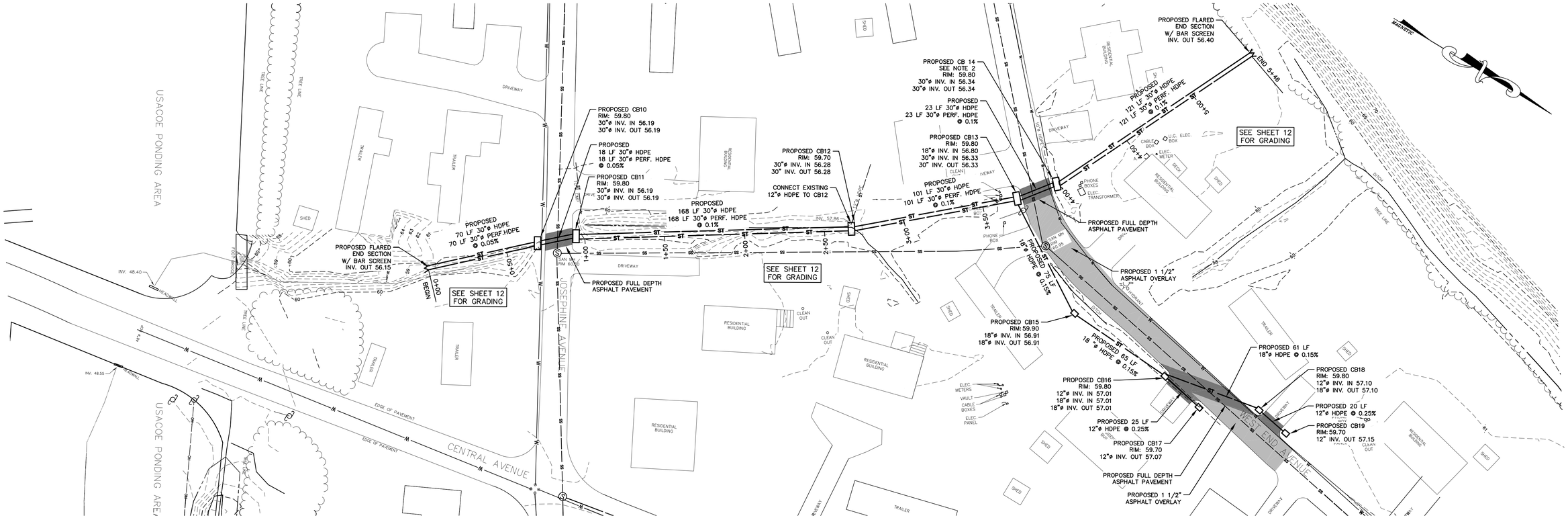
SELECTIVE DEMOLITION PLAN
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		9 OF 16
	DWG RJS	CHK JEM	

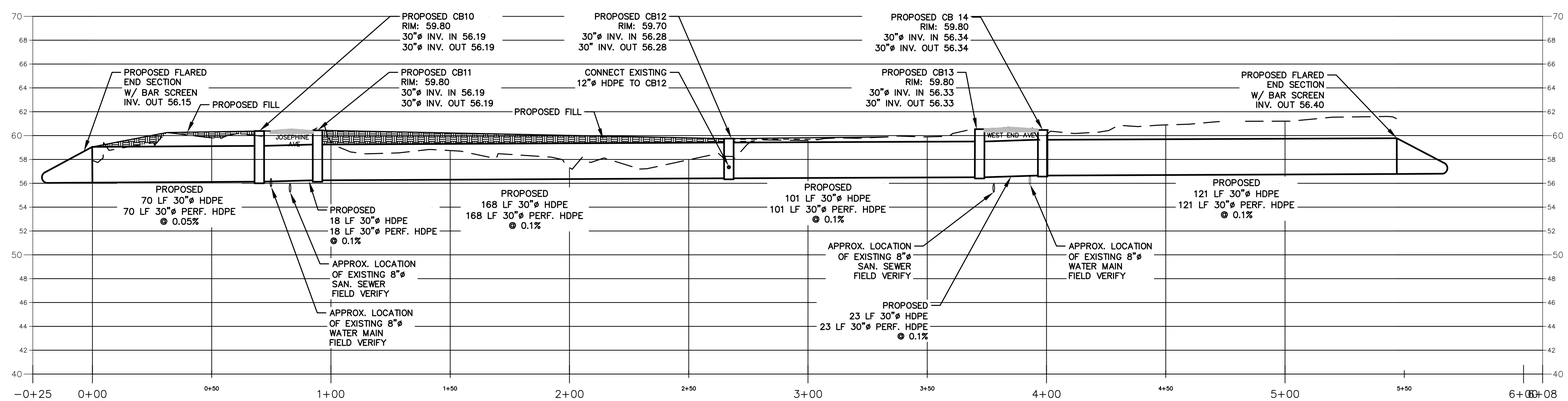


SITE PLAN

SCALE: 1" = 30'

DRAINAGE STRUCTURE SCHEDULE					
CB9	4'x4' CATCH BASIN W F&G	74.40	4 +/-	18"Ø HDPE IN	72.46
				18"Ø HDPE IN	72.46
				24"Ø HDPE OUT	71.22
CB10	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.19
CB11	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.19
CB12	4'X8' CATCH BASIN W F&G	59.80	4	12" HDPE IN	57.86
				2 - 30"Ø HDPE	56.28
CB13	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.33
CB14	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.34
CB15	3'X3' CATCH BASIN W F&G	59.90	4 +/-	18"Ø HDPE	56.91
CB16	4'X4' CATCH BASIN W F&G	59.80	3 +/-	18"Ø HDPE IN	57.01
				12"Ø HDPE IN	57.01
				18"Ø HDPE OUT	57.01
CB17	3'X3' CATCH BASIN W F&G	59.70	3 +/-	12"Ø HDPE OUT	57.05
CB18	3'X3' CATCH BASIN W F&G	59.80	3 +/-	12"Ø HDPE IN	57.10
				18"Ø HDPE OUT	57.10
CB19	3'X3' CATCH BASIN W F&G	59.70	3 +/-	12"Ø HDPE OUT	57.13

NOTES:
1. SEE PLAN AND PROFILE DRAWINGS FOR ORIENTATION OF PIPES.
2. ALL 4' CB STRUCTURES SHALL HAVE 30" X 48" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #7585 F&G ASSEMBLY OR APPROVED EQUAL.
3. ALL 3' CB STRUCTURES SHALL HAVE 24" X 24" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #5423 F&G ASSEMBLY OR APPROVED EQUAL.



PROFILE OF STORM SEWER

SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

LEGEND

50	CONTOURS (MINOR)		UTILITY POLE	ST	PROPOSED STORM SEWER
52	CONTOURS (MAJOR)		EXISTING HYDRANT		PROPOSED CATCH BASIN
PL	PROPERTY LINE	EX. CB1	EXISTING CATCH BASIN	50	PROPOSED CONTOUR
SS	EXISTING SANITARY SEWER	S	SANITARY MANHOLE		PROPOSED FULL DEPTH ASPHALT PAVEMENT
ST	EXISTING STORM SEWER	M	MANHOLE		PROPOSED 1 1/2" ASPHALT OVERLAY
W	EXISTING WATER LINE				
	DITCH				
	APPROX. TREE LINE				
X	FENCE				

NOTE:
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NOTE:
1. FIELD VERIFY TOP OF PIPE ELEVATIONS AT EACH SANITARY CROSSING PRIOR TO INSTALLING ANY STORM SEWER PIPING.
2. CB14 SHALL HAVE AN 8"HIGH X 12"LONG OPENING ON THE SOUTH SIDEWALL AT ELEV. 58.25 FEET.

GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. FELL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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PLAN AND PROFILE
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		10 OF 16
	DWG RJS	CHK JEM	

EXISTING CONDITIONS

SCALE: 1" = 40'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
℄	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:
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GRAPHIC SCALE IN FEET

40 0 40

LICENSED LAND SURVEYOR — CHRISTOPHER J. TELL — 49679 — STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER — DENNIS M. LARIOS — 058741 — STATE OF NEW YORK

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EXISTING CONDITIONS
MOUNTAIN SWALE
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE — ULSTER COUNTY — NEW YORK

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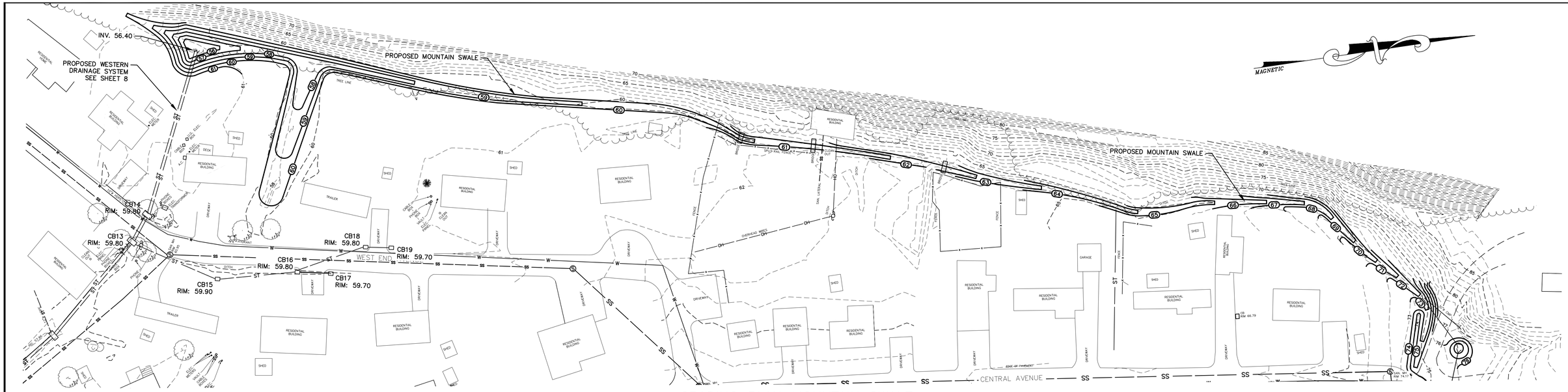
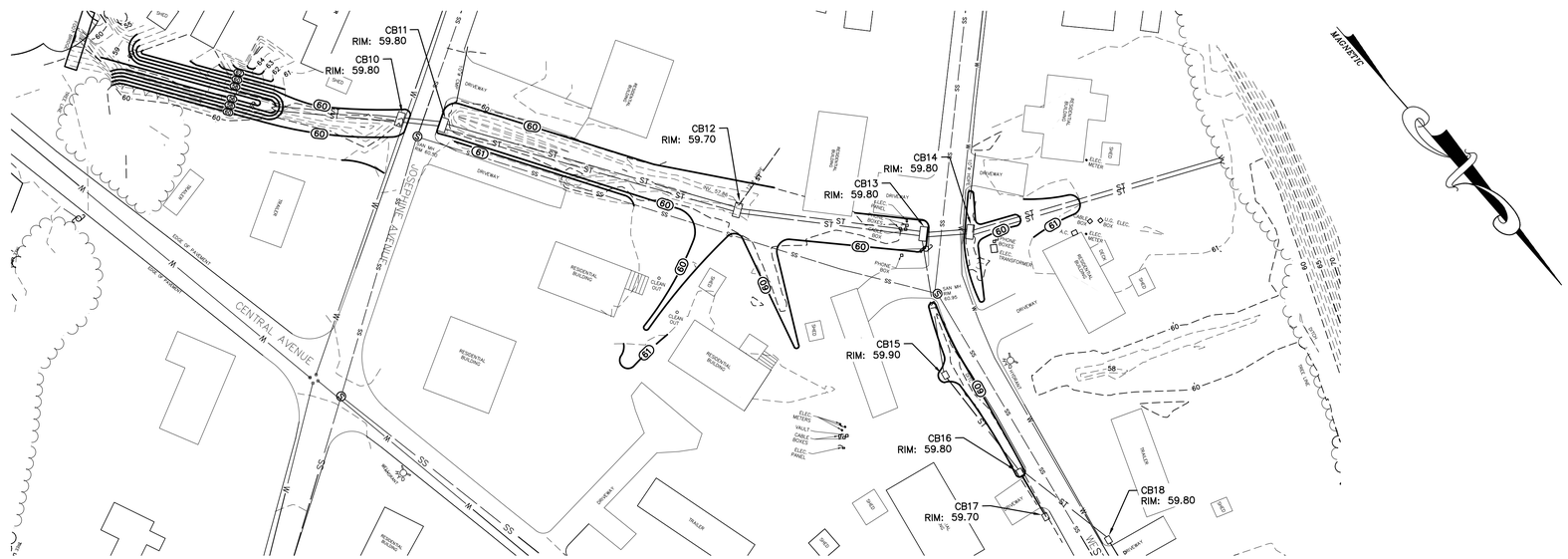


GRADING PLAN MOUNTAIN SWALE

SCALE: 1" = 40'



GRADING PLAN WESTERN DRAINAGE SYSTEM

SCALE: 1" = 40'

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR

NOTE:
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GRAPHIC SCALE IN FEET

40 0 40

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LICENSED PROFESSIONAL ENGINEER JENNIE M. LARIOS 058747 STATE OF NEW YORK

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GRADING PLAN
WEST AND MOUNTAIN SWALE
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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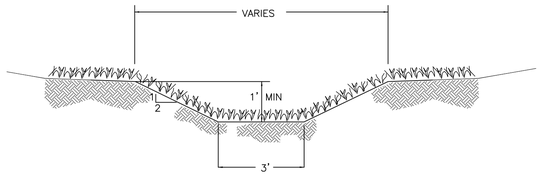
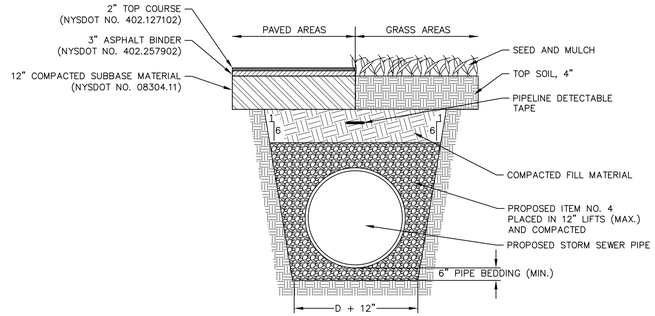
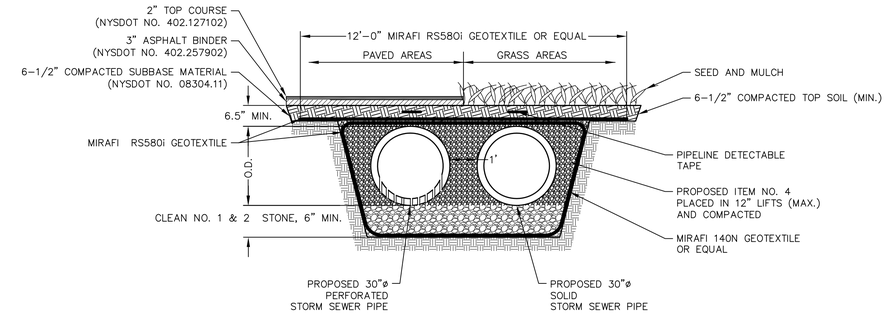


VEGETATION REQUIREMENTS FOR OPEN CHANNELS
SEED MIXTURE SHALL BE TALL FESCUE OR SMOOTH BROMEGRASS (0.45 LBS/1000 SF), KENTUCKY BLUEGRASS (0.6 LBS/1000 SF) OR PERENNIAL RYEGRASS (0.2 LBS/1000 SF). MULCH SEEDED AREAS. FERTILIZE, LIME AND MOW AS NEEDED TO MAINTAIN DENSE PROTECTIVE COVER.

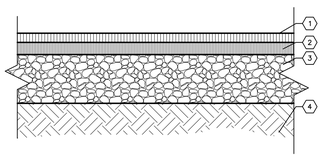
TYPICAL MOUNTAINSIDE SWALE SECTION
NOT TO SCALE



TYPICAL STORM SEWER TRENCH DETAIL
NOT TO SCALE



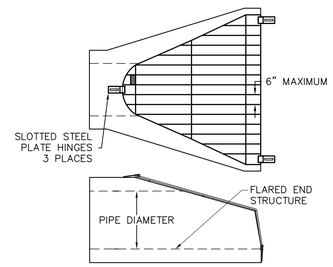
STORM SEWER TRENCH DETAIL
WESTERN DRAINAGE SYSTEM
NOT TO SCALE



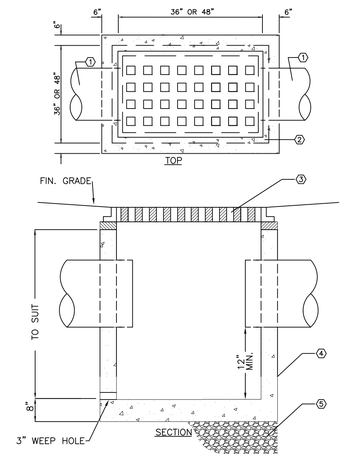
KEYED NOTES

1. 2" TYPE 6F2 ASPHALT WEARING SURFACE OVER TACK COAT. (NYSDOT #403.178202
2. 3" TYPE 3 BINDER OVER PRIME COAT. (NYSDOT #403.138902 M)
3. 12" (MIN.) COMPACTED ITEM #4 BASE MATERIAL. (NYSDOT #304.11 M)
4. WELL-DRAINED SUB-GRADE (COMPACT SUB-GRADE TO 95% MODIFIED PROCTOR),

TYPICAL PAVEMENT SECTION
NOT TO SCALE



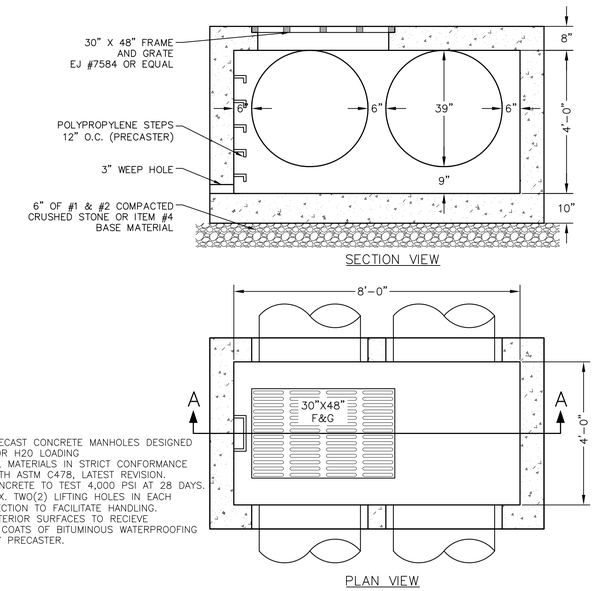
TYPICAL TRASH GUARD
FLARED END
NOT TO SCALE



KEYED NOTES

1. SEE SITE UTILITY PLAN FOR PIPE SIZES AND INVERTS.
2. PRECAST CONCRETE CATCH BASIN, 4,000 PSI CONCRETE, DESIGN FOR AASHTO H20 LOADING
3. HEAVY DUTY FRAME AND GRATE (AASHTO H20 LOADING),
   3'X3' CB – 24"X24" F&G. EJ#5423 OR EQUAL
   4'X4' CB – 30"X48" F&G. EJ#7584 OR EQUAL
   4'X5' CB – 30"X48" F&G. EJ#7584 OR EQUAL
4. EXTERIOR SURFACES TO RECEIVE 2 COATS OF BITUMINOUS WATERPROOFING BY PRECASTER
5. 6" OF #1 & #2 COMPACTED CRUSHED STONE OR ITEM #4 BASE MATERIAL

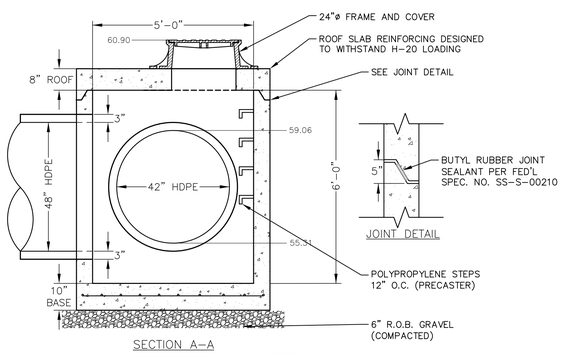
TYPICAL CATCH BASIN DETAIL
NOT TO SCALE



NOTES

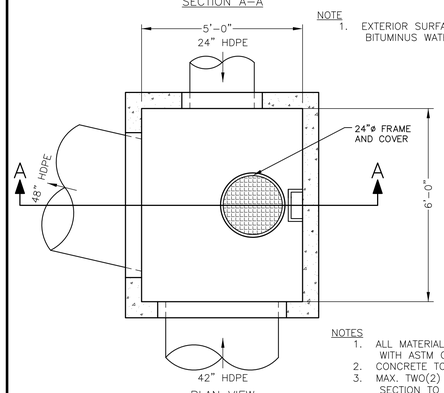
1. PRECAST CONCRETE MANHOLES DESIGNED FOR H20 LOADING
2. ALL MATERIALS IN STRICT CONFORMANCE WITH ASTM C478, LATEST REVISION.
3. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
4. MAX. TWO(2) LIFTING HOLES IN EACH SECTION TO FACILITATE HANDLING.
5. EXTERIOR SURFACES TO RECIEVE 2 COATS OF BITUMINOUS WATERPROOFING BY PRECASTER.

CATCH BASIN CB10–CB14 DETAIL
NOT TO SCALE



NOTE

1. EXTERIOR SURFACES TO RECEIVE 2 COATS OF BITUMINUS WATERPROOFING BY PRECASTER.



NOTES

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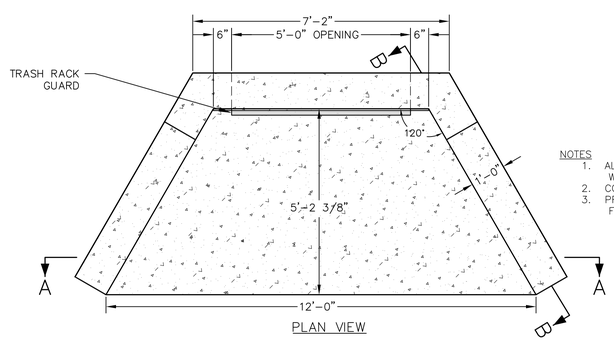
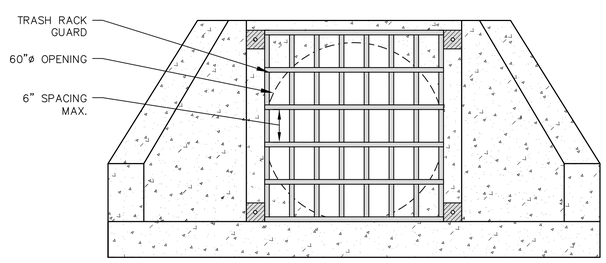
2. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
3. MAX. TWO(2) LIFTING HOLES IN EACH SECTION TO FACILITATE HANDLING.

STORM SEWER ST1 MANHOLE
NOT TO SCALE

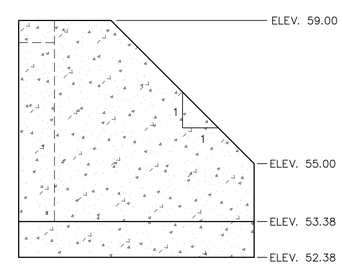


NOTES

1. ALL MATERIALS IN STRICT CONFORMANCE WITH ASTM C478, LATEST REVISION.
2. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
3. PROVIDE LIFTING HOLES AS APPROPRIATE TO FACILITATE HANDLING AND PLACEMENT



SECTION A–A



SECTION B–B

PRECAST 48"ø PIPE HEADWALL, WING WALLS, APRON AND TRASH RACK
NOT TO SCALE

LICENSED LAND SURVEYOR — CHRISTOPHER J. HILL — 49679 — STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER — DENNIS M. LARIOS — 058747 — STATE OF NEW YORK

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DETAILS
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE — ULSTER COUNTY — NEW YORK

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SCALE	DATE		SHEET NO.
N.T.S.	FEB. 2017		13 OF 16
	DWG RJS	CHK JEM	

EROSION & SEDIMENT CONTROL NOTES:

ALL CONSTRUCTION ACTIVITIES INVOLVING THE REMOVAL OR DEPOSITION OF SOILS ARE TO BE PROVIDED WITH APPROPRIATE PROTECTIVE MEASURES TO MINIMIZE EROSION OF, AND CONTAIN SEDIMENT WITHIN, THE AREA UNDER DEVELOPMENT. THOSE METHODS DEEMED MOST EFFECTIVE ARE DESCRIBED BELOW.

1. FOLLOW THE CONSTRUCTION SCHEDULE OUTLINED ON THIS SHEET.
2. CLEAR ONLY WHAT IS REQUIRED FOR THE IMMEDIATE CONSTRUCTION ACTIVITY. CLEARING AND GRADING SHOULD BE DONE AS CONSTRUCTION PROGRESSES. ONLY THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME DURING CONSTRUCTION.
3. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE.
4. PRIOR TO THE START OF CONSTRUCTION, TEMPORARY SILT FENCING AND/OR OTHER APPROVED DEVICES SHALL BE INSTALLED WHERE DEEMED NECESSARY TO PREVENT SOIL MIGRATION INTO WATER COURSES, WETLANDS, STORM DRAINAGE SYSTEMS, AND OFF SITE. SEE SILTATION CONTROL NOTES FOR INSTALLATION AND MAINTENANCE OF SILT FENCING.
5. WHENEVER POSSIBLE, SITE CONSTRUCTION ACTIVITIES SHALL START AT THE NEAREST POINT UPSLOPE OF THE EROSION CONTROL DEVICE, AND PROCEED TO ACTIVITIES FURTHER UPSLOPE.
6. SILT FENCING/TRAPS SHALL BE CLEANED OUT WHEN ACCUMULATED SEDIMENT HAS REDUCED THE CAPACITY OF THE TRAP BY 50%. SEDIMENT REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF IN A MANNER WHICH PREVENTS IT FROM ENTERING THE TRAP AGAIN.
7. WHEN LAND IS EXPOSED DURING DEVELOPMENT, THE PERIOD OF EXPOSURE SHALL BE KEPT TO A MINIMUM. IF PERMANENT VEGETATION, PAVEMENT, AND/OR STRUCTURES ARE NOT COMPLETED WITHIN 14 DAYS, STRAW MULCH (OR OTHER APPROVED MATERIAL) SHALL BE SPREAD TO TEMPORARILY COVER EXPOSED SOILS.
8. NO PERMITTED CONSTRUCTION ACTIVITIES SHALL TAKE PLACE WITHIN ANY WATERCOURSES OR WETLANDS UNTIL APPROPRIATE MEASURES ARE TAKEN TO PROTECT AND/OR TEMPORARILY DIVERT FLOWING WATER PAST THE WORK AREA AND DOWNSTREAM SEDIMENT CONTROLS ARE IN PLACE. IN GENERAL, THESE SEDIMENT CONTROLS SHALL NOT BE REMOVED UNTIL UPSTREAM ACTIVITY HAS BEEN SATISFACTORILY COMPLETED AND THE STREAM FLOWS CLEAR.
9. ALL TOPSOIL WHICH HAS BEEN STRIPPED AND STOCKPILED SHALL BE PLACED AT LEAST 50 FEET FROM ANY WETLAND OR WATERCOURSE. THE TOE OF THE STOCKPILE SHALL BE PROTECTED IN A MANNER WHICH PREVENTS SOIL FROM MIGRATING.
10. RING ANY TEMPORARY STOCKPILES WITH SILT FENCE TO PREVENT EROSION OF THE PILE.
11. ALL TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL REMAIN IN PLACE AND BE MAINTAINED REGULARLY IN PROPER FUNCTIONING CONDITION UNTIL ALL AREAS EXPOSED DURING CONSTRUCTION HAVE BEEN SUITABLY STABILIZED WITH FINAL VEGETATIVE COVER, PERMANENT STRUCTURES, OR PAVEMENT.
12. THE CONTRACTOR SHALL COMPLY WITH THE PROVISIONS OF ALL ENVIROMENTAL/SPDES PERMITS ISSUED FOR THIS PROJECT AND LOCAL, STATE AND FEDERAL REGULATIONS.
13. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PREVENT CONTAMINATION OF THE EXISTING DRAINAGE SWALES BY SILT, SEDIMENT, FUELS, SOLVENTS, LIQUIDS, CONCRETE LEACHATE, OR ANY OTHER POLLUTANT ASSOCIATED WITH THE CONSTRUCTION OF THIS PROJECT.

CONSTRUCTION SCHEDULE:

1. FLAG THE LIMIT OF DISTURBANCE TO DELINEATE THE WORK AREAS.
2. HOLD A PRE–CONSTRUCTION MEETING PRIOR TO STARTING CONSTRUCTION.
3. INSTALL TEMPORARY STABILIZED CONSTRUCTION ENTRANCE.
4. INSTALL TEMPORARY SILT FENCING. SILT FENCE LOCATIONS AS DEPICTED ON PLANS ARE ILLUSTRATIVE. CONTRACTOR SHALL EXERCISE DILIGENCE WHEN INSTALLING SILT FENCE TO CAPTURE ALL SEDIMENT LADEN RUNOFF.
5. CLEAR AND ROUGH GRADE SITE IN THE AREAS OF IMMEDIATE CONSTRUCTION ACTIVITY ONLY.
6. STOCKPILE TOPSOIL. CONSTRUCT CHANNELS. BARE AREAS SHALL BE MULCHED SHOULD GRADING BE DISCONTINUED FOR MORE THAN 14 DAYS.
7. COMPLETE FINAL GRADING FOR SLOPE STABILIZATION.
8. COMPLETE FINAL GRADING. TOPSOIL CRITICAL AREAS AND PERMANENTLY VEGETATE, LANDSCAPE AND MULCH.
9. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AT LEAST ONCE EVERY (7) SEVEN CALENDER DAYS. NEEDED REPAIRS WILL BE MADE IMMEDIATELY. IF GREATER THAN 5 ACRES OF LAND IS DISTURBED AT ONE TIME, THE QUALIFIED INSPECTOR SHALL CONDUCT 2 SITE INSPECTIONS EVERY (7) SEVEN CALENDER DAYS.
10. AFTER THE SITE IS STABILIZED, REMOVE ALL TEMPORARY MEASURES AND INSTALL PERMANENT VEGETATION ON THE DISTURBED AREAS.

INSPECTIONS AND REPORTING:

1. FOLLOW ALL REQUIREMENTS OUTLINED IN THE SWPPP AND NYSDEC SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY, PERMIT NO. GP–0–15–002.

SILTATION CONTROL NOTES:

1. ALL SILTATION AND EROSION CONTROL STRUCTURES SHALL BE INSTALLED PRIOR TO ANY EXCAVATION AND AS ACCEPTABLE TO THE ENGINEER. SILT FENCE SHALL BE MAINTAINED FOR THE DURATION OF SAID WORK AND SHALL NOT BE REMOVED UNTIL APPROVED BY THE ENGINEER.

2. SILT FENCE SHALL CONSIST OF 24" HIGH GEOTEXTILE FABRIC (FILTER CLOTH) INSTALLED PARALLEL WITH THE TOE OF SLOPES AS INDICATED ON THE PLAN.

3. THE FABRIC SHALL BE FASTENED SECURELY AT THE TOP AND MID SECTION TO MIN. 3' LONG FENCE POSTS PLACED A MAX. OF 10' ON CENTER. THE BOTTOM 6" OF FABRIC SHALL BE LAID INTO THE TRENCH TO PREVENT UNDERMINING.

4. ADJOINING SECTIONS OF FILTER CLOTH SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.

5. SILT FENCING SHALL BE CLEANED OUT WHEN NEED, WHEN ACCUMULATED SEDIMENT HAS REDUCED THE CAPACITY BY 50% OR BULGES DEVELOP IN THE FABRIC. SEDIMENT REMOVED BE PROPERLY DISPOSED OF IN A MANNER WHICH PREVENTS IT FROM ENTERING THE AREA AGAIN.

6. SILT FENCE SHALL BE INSTALLED IN ALL AREAS THAT WILL HAVE AN EXCAVATION OPEN FOR MORE THAN 24 HOURS.

7. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF–PRODUCING RAINFALL AND NO LESS THAN ONCE EVERY WEEK. ANY NEED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED AND INSTALLED FOR THEIR APPROPRIATE PHASE OF THE PROJECT.

LANDSCAPING & VEGETATION ESTABLISHMENT NOTES:

1. ALL TEMPORARY SEEDING SHALL BE RYEGRASS (ANNUAL OR PERENNIAL) AT AN APPLICATION RATE OF 0.7 POUNDS PER 1,000 SQUARE FEET. MULCH IMMEDIATELY AFTER SEEDING WITH STRAW AT A RATE OF 2 BALES (90 lbs) PER 1,000 SQUARE FEET.
2. ALL OTHER SITE AREAS SPECIFIED FOR PERMANENT GRASS VEGETATION SHALL BE SEEDED WITH A MIXTURE OF PERENNIAL RYEGRASS SEED OF THE PENNFINE/JUNN VARIETY AT A RATE 0.10 POUNDS PER 1,000 SQUARE FOOT. EROSION AND SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE INSPECTED UNTIL FULL VEGETATION IS ESTABLISHED.
3. STRAW MULCH SHALL BE USED FOR ALL AREAS WHERE VEGETATION IS TO BE ESTABLISHED. MULCH SHALL BE INSTALLED IMMEDIATELY AFTER SEEDING AT A RATE OF 90–100 POUNDS PER 1,000 SQUARE FEET.

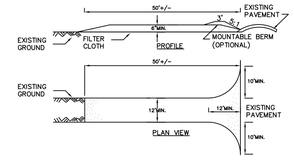
MAINTENANCE SCHEDULE:

MAINTENANCE DURING CONSTRUCTION

- ALL EROSION AND SEDIMENT CONTROL PRACTICES ALONG WITH TREE PROTECTION PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION EVERY SEVEN DAYS. ANY NEEDED REPAIRS WILL BE DONE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED AND INSTALLED FOR THEIR APPROPRIATE PHASE OF THE PROJECT.
- THE STABILIZED CONSTRUCTION ENTRANCES SHALL BE CLEANED OR REPLACED WHEN TRACKING OF SEDIMENT BECOMES EVIDENT.

LONG TERM MAINTENANCE

- WEED AND WATER TO ESTABLISH PERMANENT VEGETATION.
- REPLACEMENT/REHABILITATION SHALL BE MADE TO ANY ERODED AREAS.
- PROVIDE REPLACEMENT OF PLANTINGS, MULCH, WEEDING AND THINNING TO MAINTAIN THE DESIRED APPEARANCE.
- THE STORM WATER MANAGEMENT AREAS SHALL BE KEPT CLEAN OF TRASH AND DEBRIS.
- INSPECT AT LEAST TWICE DURING THE FIRST SIX MONTHS. SUBSEQUENTLY, INSPECTIONS SHOULD BE CONDUCTED ANNUALLY AND AFTER STORM EVENTS GREATER THAN 2".

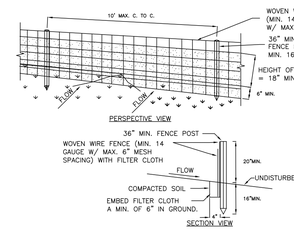


CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY–FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN EVENT.
10. STABILIZED CONSTRUCTION ENTRANCES SHALL BE CONSTRUCTED AND MAINTAINED AT SITE ENTRANCES DURING PHASE I CONSTRUCTION AND AT DRIVEWAY ENTRANCES DURING PHASE II CONSTRUCTION.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

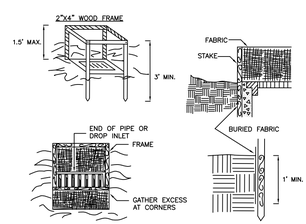


CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER–LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
6. SILT FENCE LOCATIONS AS DEPICTED ON PLANS ARE ILLUSTRATIVE. CONTRACTOR SHALL EXERCISE DILIGENCE WHEN INSTALLING SILT FENCE TO CAPTURE ALL SEDIMENT LADEN RUNOFF.

SILT FENCE DETAIL

NOT TO SCALE



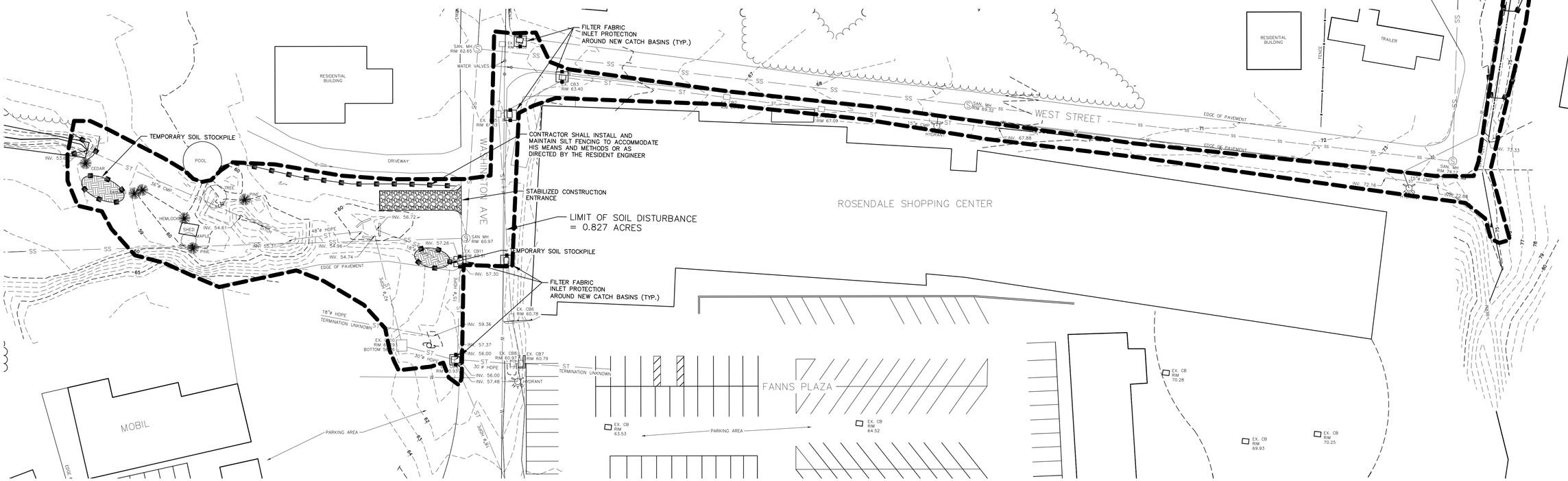
CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40–85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUN DRAINAGE AREA 1 ACRE

FILTER FABRIC INLET PROTECTION

NOT TO SCALE



EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 30'

EROSION AND SEDIMENT CONTROL PLAN – EAST
CONTRACT NO. TS–171

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	SILT FENCE AND CB INLET PROTECTION

NOTE:
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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. FELL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058741 STATE OF NEW YORK

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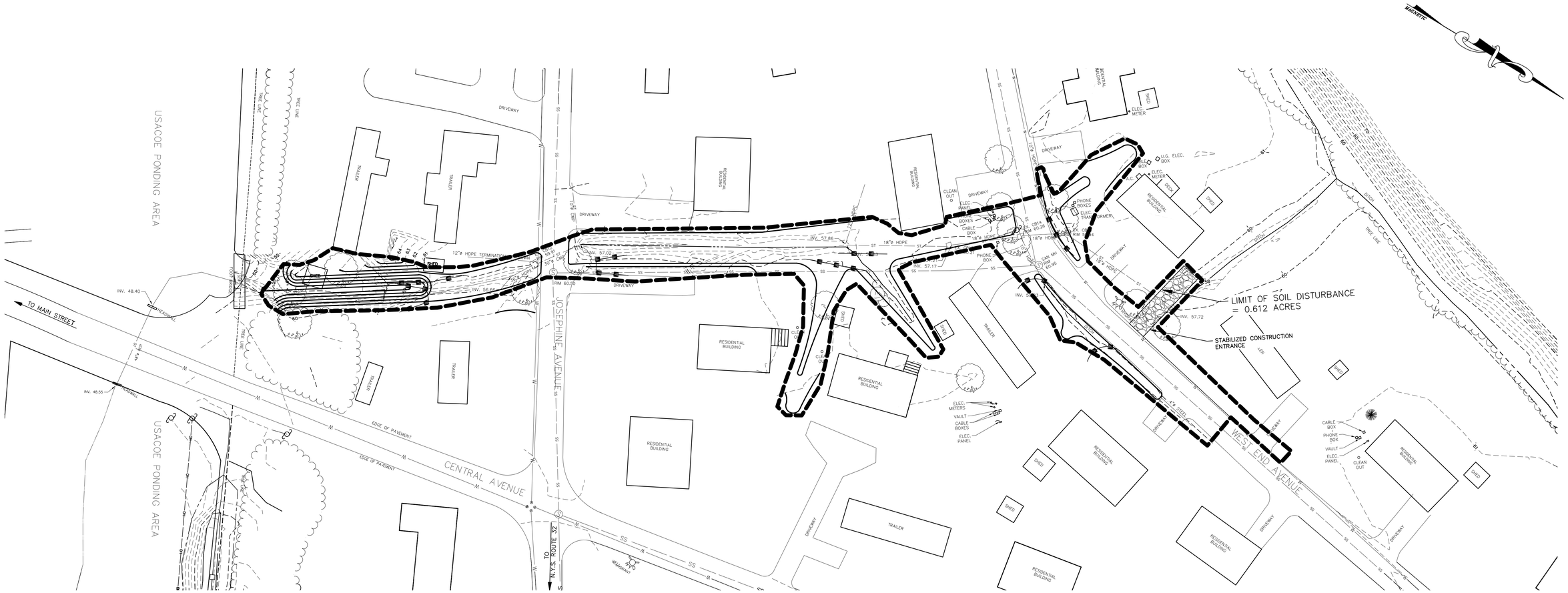
WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845–338–7622 Fax: 845–338–7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		14 OF 16
	DWG RJS	CHK JEM	



EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 30'

NOTE:

1. SEE SHEET 14 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
2. CONTRACTOR SHALL INSTALL AND MAINTAIN SILT FENCING TO ACCOMMODATE HIS MEANS AND METHODS OR AS DIRECTED BY THE OWNERS REPRESENTATIVE.
3. SEE SHEET 12 FOR GRADING PLAN.

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EX. CB1 EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- SILT FENCE AND CB INLET PROTECTION

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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIFER M. LARIOS 058741 STATE OF NEW YORK

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EROSION AND SEDIMENT
CONTROL PLAN – EAST
CONTRACT NO. TS–171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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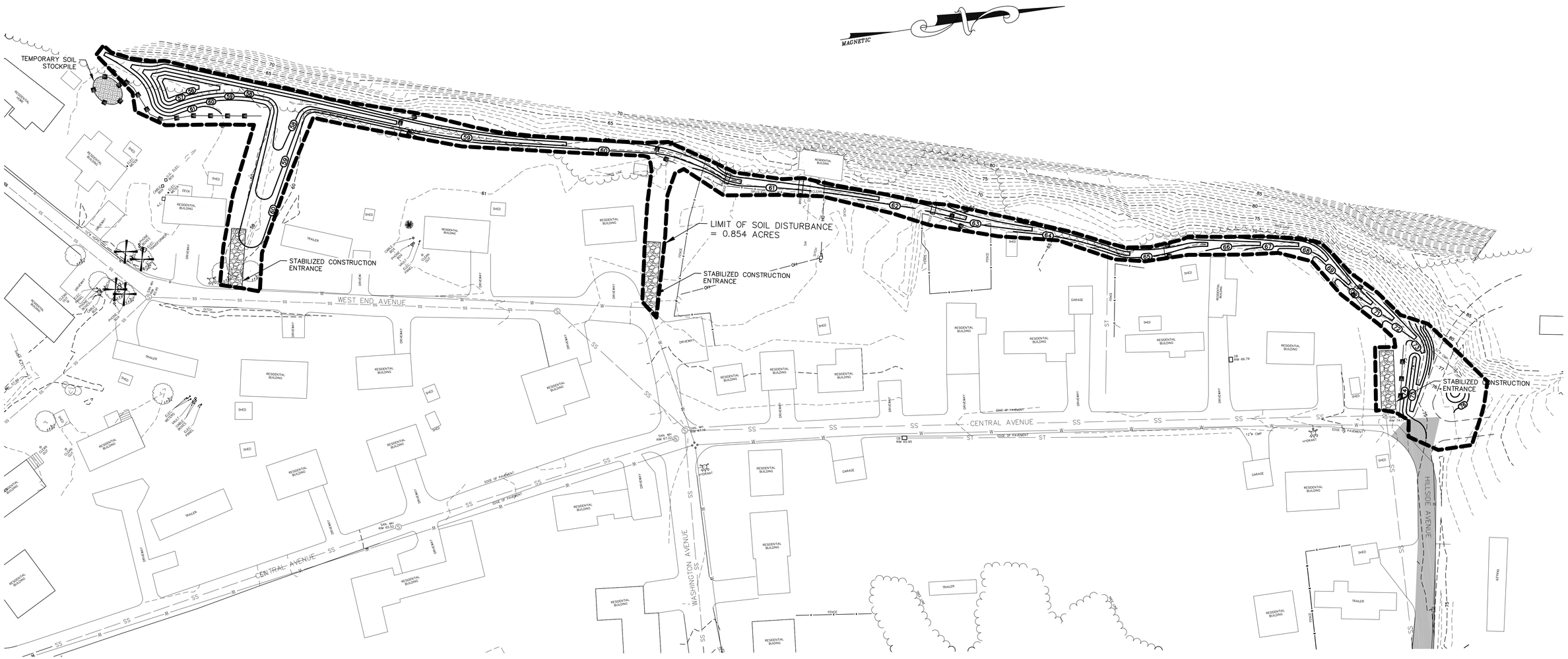

EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 40'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	SILT FENCE AND CB INLET PROTECTION

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2. CONTRACTOR SHALL INSTALL AND MAINTAIN SILT FENCING TO ACCOMMODATE HIS MEANS AND METHODS OR AS DIRECTED BY THE OWNERS REPRESENTATIVE.
3. SEE SHEET 12 FOR GRADING PLANS.

GRAPHIC SCALE IN FEET

40 0 40

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL #9679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIS M. LARIOS 058747 STATE OF NEW YORK

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EROSION AND SEDIMENT CONTROL PLAN – MOUNTAIN SWALE
CONTRACT NO. TS–171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
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TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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1" = 40'	FEB. 2016		16 OF 16
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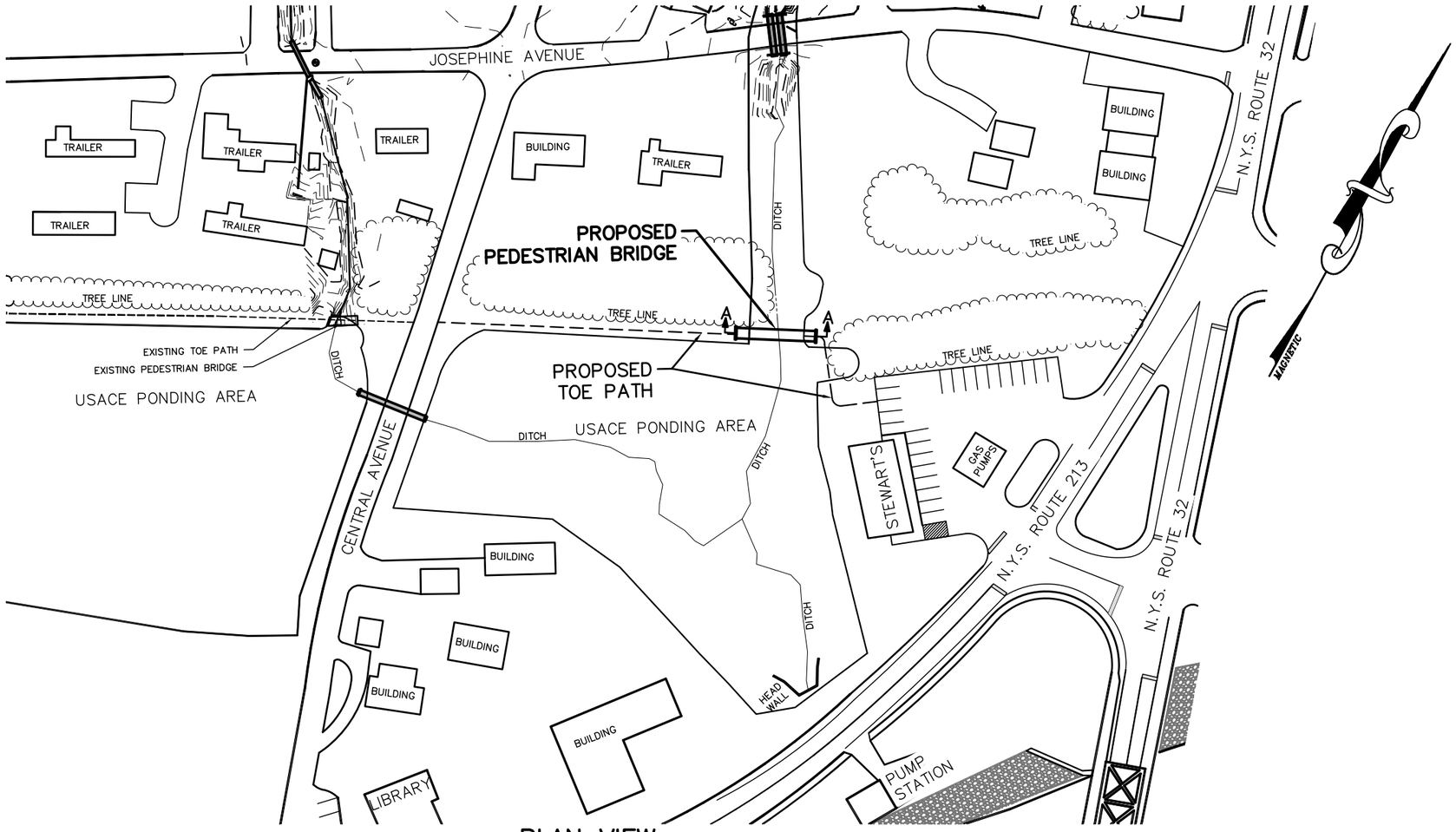
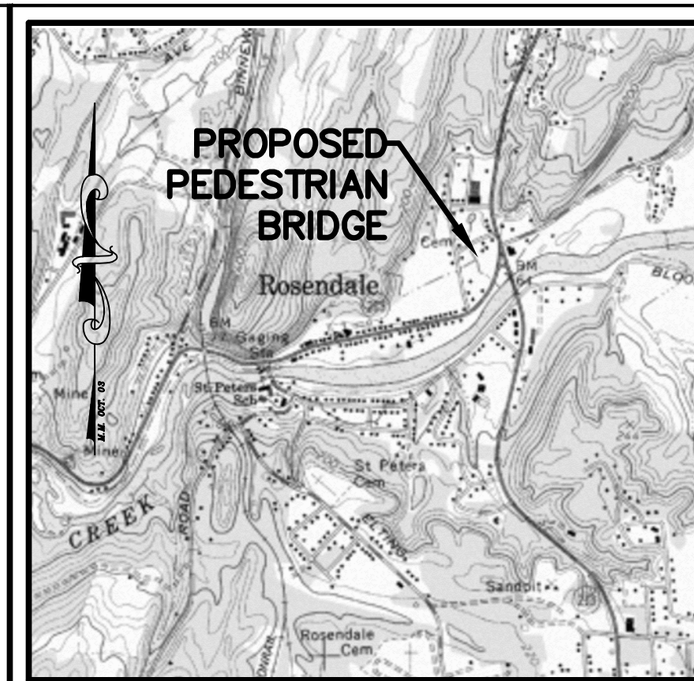
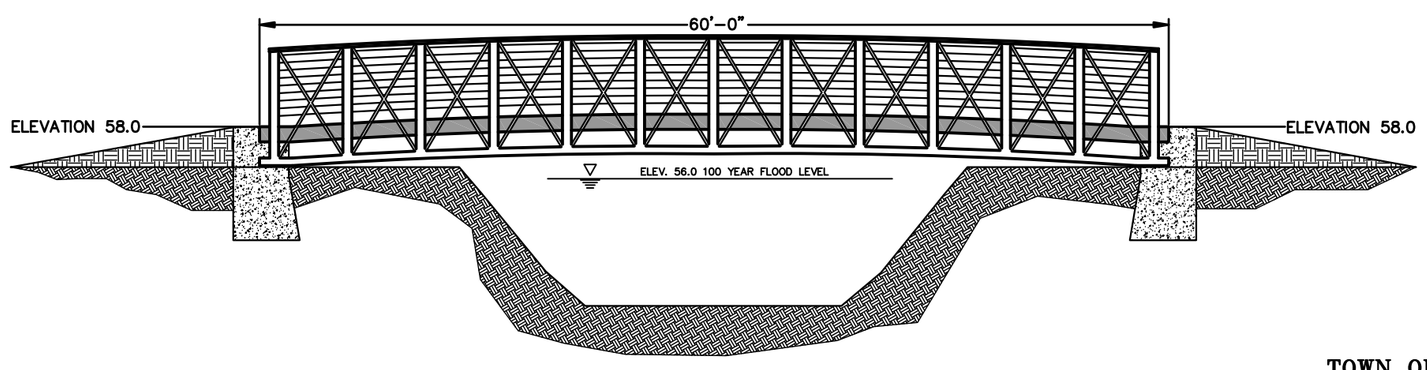


PLAN VIEW
SCALE: 1" = 100'



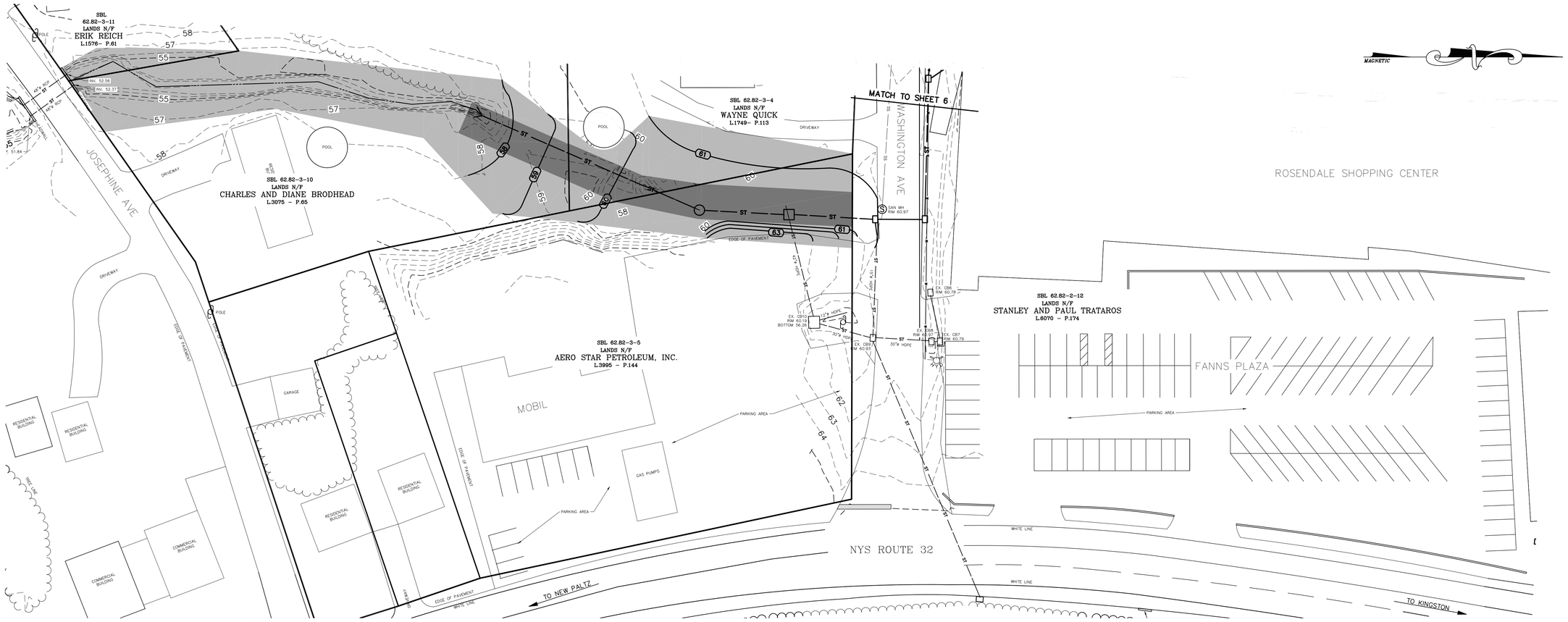
LOCATION MAP
ROSENDALE QUADRANGLE
7.5' MINUTE USGS TOPOGRAPHIC MAP
SCALE: 1" = 2000'



SECTION VIEW A-A
NOT TO SCALE

CHANGE ORDER NO. 1
PEDESTRIAN BRIDGE
WASHINGTON PARK
STORMWATER MITIGATION

TOWN OF ROSENDALE, ULSTER COUNTY, NEW YORK



SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
AERO STAR PETROLEUM INC 62.82-3-5	20' WIDE 0.05 ACRES	WIDTH VARIES 0.07 ACRES
WAYNE QUICK 62.82-3-4	20' WIDE 0.02 ACRES	WIDTH VARIES 0.08 ACRES
CHARLES AND DIANE BRODHEAD 62.82-3-10	20' WIDE 0.03 ACRES	WIDTH VARIES 0.25 ACRES
ERIK REICH 62.82-3-11	NONE	WIDTH VARIES 0.02 ACRES

LEGEND

- 50 — CONTOURS (MINOR)
- 52 — CONTOURS (MAJOR)
- ℄ — PROPERTY LINE
- ST — EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- x — FENCE
- UTILITY POLE
- EX. CB1 — EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- ST — PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- 62 — PROPOSED CONTOUR
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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DRAFT

REQUIRED EASEMENTS
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY

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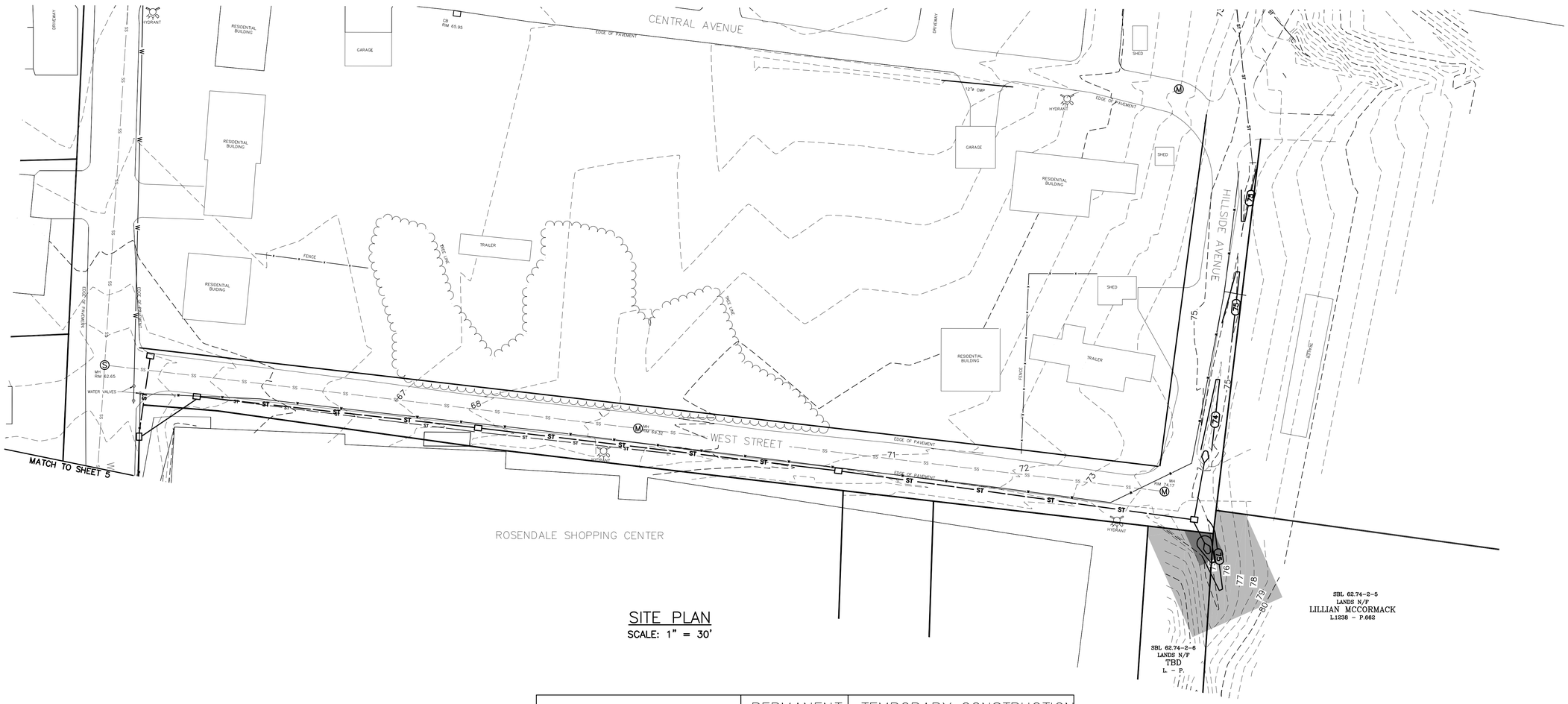
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE	SHEET NO.
1" = 30'	NOV. 2016	1 OF 4
	DWG RJS / CHK	

MAGNETIC



SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
LILLIAN MCCORMACK 62.74-2-5	20' WIDE 0.001 ACRES	WIDTH VARIES 0.04 ACRES
TBD 62.74-2-6	20' WIDE 0.004 ACRES	WIDTH VARIES 0.03 ACRES

DRAFT

REQUIRED EASEMENTS
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EX. CB1 EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR

GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER BRIAN M. LARIOS 058741 STATE OF NEW YORK

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1" = 30'	NOV. 2016		2 OF 4
	DWG RJS	CHK	

SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
LAMONT VANWEZEMAAL 62.82-1-4	20' WIDE 0.04 ACRES	WIDTH VARIES 0.19 ACRES
WASHINGTON EST. DEV. CORP. 62.82-1-12.100	20' WIDE 0.25 ACRES	WIDTH VARIES 0.38 ACRES
CHARLES AND DIANE BRODHEAD 62.82-1-12.100	NONE	WIDTH VARIES 0.02 ACRES
LAURA AND CAMERON HENDRIX 62.82-1-13	NONE	WIDTH VARIES 0.04 ACRES

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EX. CB1 EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR
- PROPOSED MOUNTAIN SWALE
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

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GRAPHIC SCALE IN FEET

30 0 30

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LICENSED PROFESSIONAL ENGINEER JENNIG M. LARIOS 058741 STATE OF NEW YORK

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DRAFT

REQUIRED EASEMENTS
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

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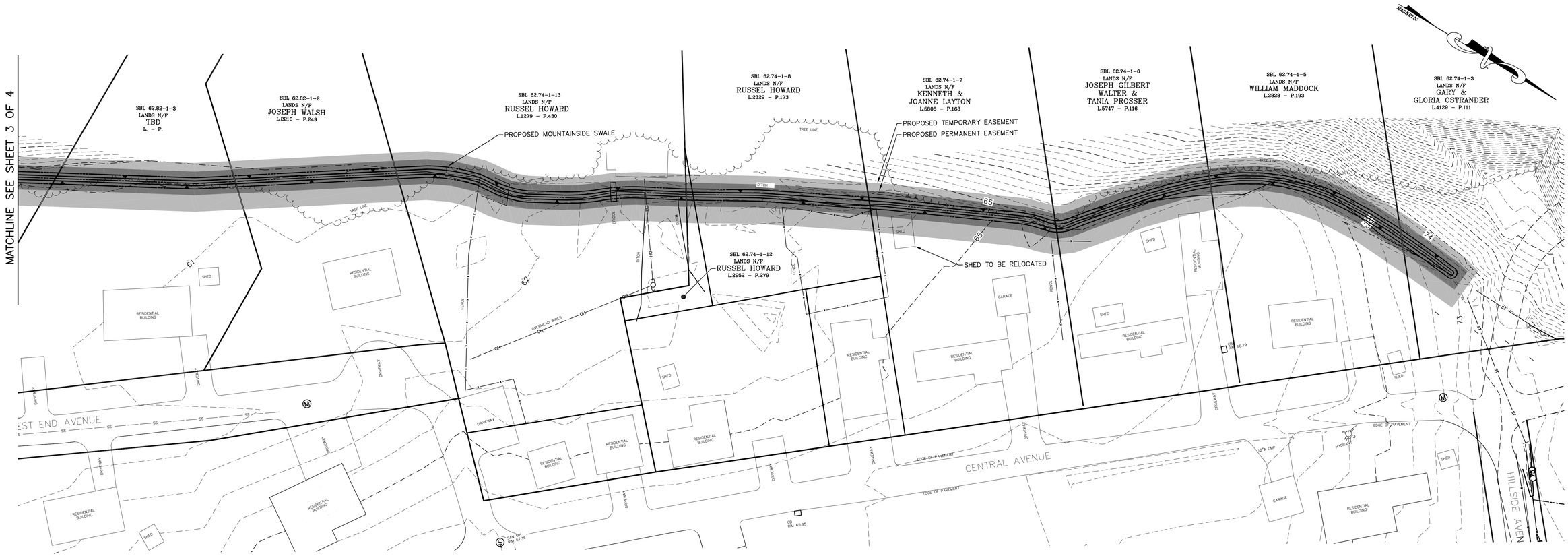
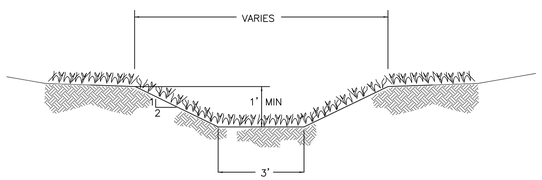
	DWG RJS	CHK	



SITE PLAN

SCALE: 1" = 30'



VEGETATION REQUIREMENTS FOR OPEN CHANNELS
SEED MIXTURE SHALL BE TALL FESCUE OR SMOOTH BROMEGRASS (0.45 LBS/1000 SF), KENTUCKY BLUEGRASS (0.6 LBS/1000 SF) OR PERENNIAL RYEGRASS (0.2 LBS/1000 SF). MULCH SEEDED AREAS. FERTILIZE, LIME AND MOW AS NEEDED TO MAINTAIN DENSE PROTECTIVE COVER.

TYPICAL MOUNTAINSIDE SWALE SECTION

NOT TO SCALE

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
TBD 62.82-1-3	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
JOSEPH WALSH 62.82-1-2	15' WIDE 0.03 ACRES	15' WIDE 0.03 ACRES
RUSSELL HOWARD 62.74-1-13	15' WIDE 0.06 ACRES	15' WIDE 0.06 ACRES
RUSSELL HOWARD 62.74-1-12	15' WIDE 0.001 ACRES	15' WIDE 0.002 ACRES
RUSSELL HOWARD 62.74-1-8	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
KENNETH & JOANNE LAYTON 62.74-1-7	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
JOSEPH GILBERT 62.74-1-6	15' WIDE 0.03 ACRES	15' WIDE 0.03 ACRES
WILLIAM MADDOCK 62.74-1-5	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
GARY & GLORIA OSTRANDER 62.74-1-3	15' WIDE 0.02 ACRES	15' WIDE 0.02 ACRES

DRAFT

REQUIRED EASEMENTS
MOUNTAINSIDE SWALE
CONTRACT NO. TR-171

LEGEND

- 50 — CONTOURS (MINOR)
- 52 — CONTOURS (MAJOR)
- R — PROPERTY LINE
- ST — EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- x — FENCE
- UTILITY POLE
- EX. CB1 — EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- ST — PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- 65 — PROPOSED CONTOUR
- PROPOSED MOUNTAIN SWALE
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

NOTE:
The location of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the contractor's failure to exactly locate and preserve any and all underground utilities.

GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

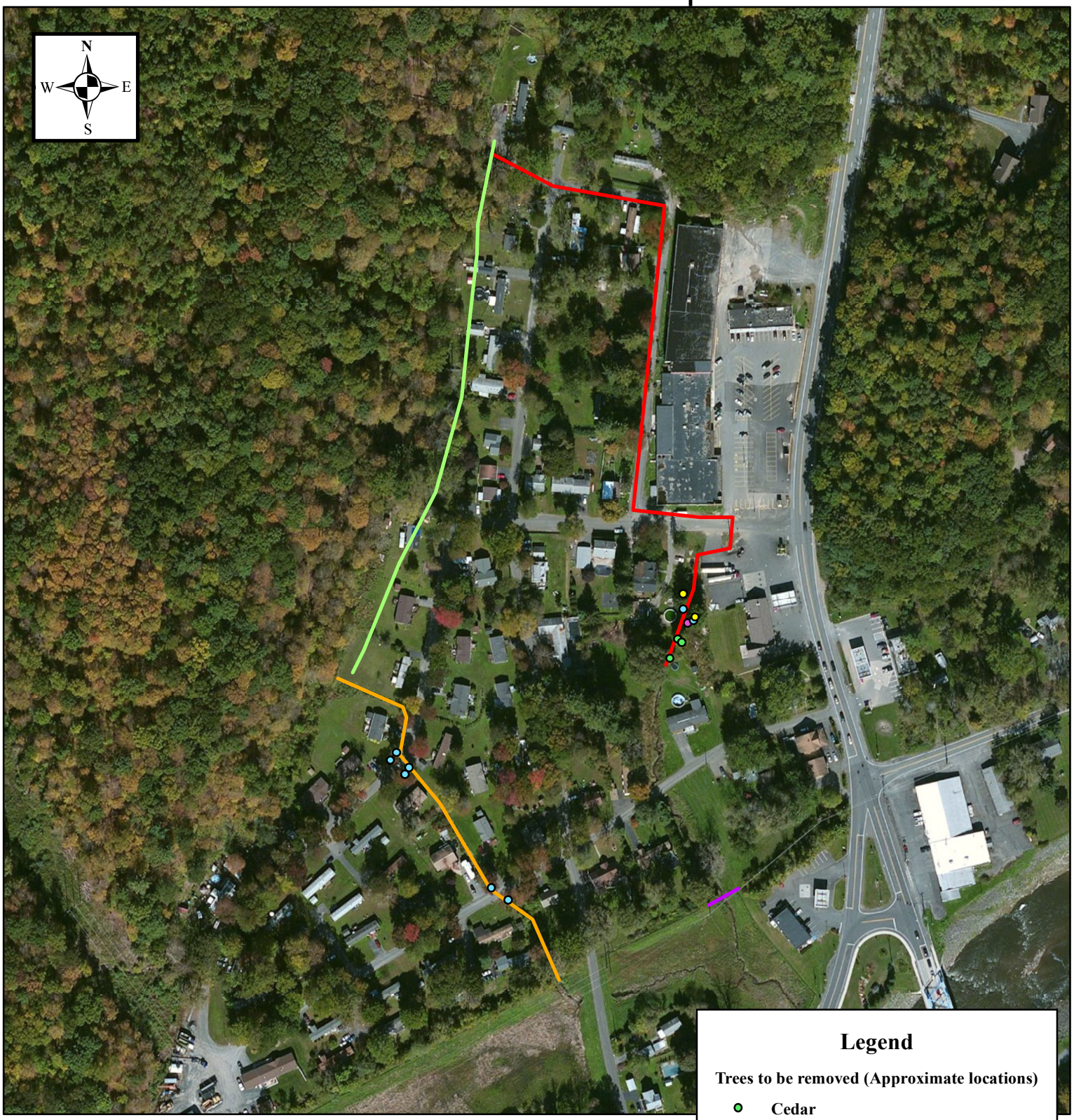
WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	NOV. 2016		4 OF 4
	DWG RJS	CHK	

Tree Location Map



TECTONIC
Practical Solutions, Exceptional Service

0 125 250 500 Feet

1:3,000

Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

Legend

Trees to be removed (Approximate locations)

- **Cedar**
- **Hemlock**
- **Maple**
- **Pine**

Approximate Work Locations

- **Eastern Drainage System**
- **Mountain Swale**
- **Western Drainage System**
- **Pedestrian Bridge**

APPENDIX A
PHASE 1 SUMMER HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Rosendale-Washington Park Date: 4/3/2017

Township/Range/Section: Rosendale, NY

Lat Long/UTM/ Zone: 18 E: 576532.17, N: 4633262.22 Surveyor: A. Bailey, NYS DEC

Brief Project Description

14 trees will be removed in a residential area for the installation of new sewer drains.

Project Area

	Total Acres	Forest Acres		Open Acres
Project				

	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing
Proposed Tree Removal (ac)		Remove 14 trees	

Vegetation Cover Types

Pre-Project	Post-Project
Residential area with scattered individual trees	Residential area with scattered individual trees.

Landscape within 5 mile radius

Flight corridors to other forested areas?
The project does not fall into any flight corridors, although there are corridors within 5 miles.

Describe Adjacent Properties (e.g. forested, grassland, commercial or residencial development, water sources)
Located within the town of Rosendale, and surrounded primarily by commercial & residential development.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

≈.17 miles from Water Williams Preserve WMA.

APPENDIX A
PHASE 1 SUMMER HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): 1

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: no immediate water sources. Rondout Creek is >1000 ft. away.
Pools/Ponds (# and size)		Open and accessible to bats?		
Wetlands (approx. ac.)	Permanent	Seasonal		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50')	Midstory (20-50')	Understory (<20')	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81=100%
	1	1	1	
Dominant Species of Mature Trees				
% Trees w/ Exfoliating Bark	0	0	0	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
		28%	72%	
No. of Suitable Snags		0		

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? no

Additional Comments: while this site is located within 2.5 miles of known Indiana bat hibernacula, the project is taking place entirely within a residential area without forest cover. All trees are live without noticeable exfoliating bark and there is little chance northern or Indiana bats would be roosting or foraging in an area with so much development.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

Figure 1. Aerial view of the project area for the Rosendale-Washington Park project. 14 trees within the residential project area will be removed.

Figure 2. Street trees that will be removed with the installation of new sewer drains.

Figure 3. Street trees that will be removed with the installation of new sewer drains.

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Ulster County, New York

Not for consultation

Local office

New York Ecological Services Field Office

(607) 753-9334
(607) 753-9699

3817 Luker Road
Cortland, NY 13045-9349

http://www.fws.gov/northeast/nyfo/es/section7.htm

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] are managed by the Endangered Species Program of the U.S. Fish and Wildlife Service.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Indiana Bat Myotis sodalis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat Myotis septentrionalis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Reptiles

NAME	STATUS
Bog Turtle Clemmys muhlenbergii No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6962	Threatened

Not for consultation

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service[3]. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data http://www.birdscanada.org/birdmon/default/datasummaries.jsp

The migratory birds species listed below are species of particular conservation concern (e.g. Birds of Conservation Concern) that may be potentially affected by activities in this location. It is not a list of every bird species you may find in this location, nor a guarantee that all of the bird species on this list will be found on or near this location. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To view available data on other bird species that may occur in your project area, please visit the AKN Histogram Tools and Other Bird Data Resources. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

NAME	SEASON(S)
American Bittern Botaurus lentiginosus https://ecos.fws.gov/ecp/species/6582	Breeding

Bald Eagle Haliaeetus leucocephalus https://ecos.fws.gov/ecp/species/1626	Year-round
Black-billed Cuckoo Coccyzus erythropthalmus https://ecos.fws.gov/ecp/species/9399	Breeding
Black-crowned Night-heron Nycticorax nycticorax https://ecos.fws.gov/ecp/species/6487	Breeding
Blue-winged Warbler Vermivora pinus	Breeding
Canada Warbler Wilsonia canadensis	Breeding
Cerulean Warbler Dendroica cerulea https://ecos.fws.gov/ecp/species/2974	Breeding
Golden-winged Warbler Vermivora chrysoptera https://ecos.fws.gov/ecp/species/8745	Breeding
Least Bittern Ixobrychus exilis https://ecos.fws.gov/ecp/species/6175	Breeding
Olive-sided Flycatcher Contopus cooperi https://ecos.fws.gov/ecp/species/3914	Breeding
Peregrine Falcon Falco peregrinus https://ecos.fws.gov/ecp/species/8831	Breeding
Pied-billed Grebe Podilymbus podiceps	Breeding
Prairie Warbler Dendroica discolor	Breeding
Red-headed Woodpecker Melanerpes erythrocephalus	Breeding
Rusty Blackbird Euphagus carolinus	Wintering
Short-eared Owl Asio flammeus https://ecos.fws.gov/ecp/species/9295	Wintering
Willow Flycatcher Empidonax traillii https://ecos.fws.gov/ecp/species/3482	Breeding
Wood Thrush Hylocichla mustelina	Breeding
Worm Eating Warbler Helmitheros vermivorum	Breeding

Not for consultation

What does IPaC use to generate the list of migratory bird species potentially occurring in my specified location?

Landbirds:

Migratory birds that are displayed on the IPaC species list are based on ranges in the latest edition of the National Geographic Guide, Birds of North America (6th Edition, 2011 by Jon L. Dunn, and Jonathan Alderfer). Although these ranges are coarse in nature, a number of U.S. Fish and Wildlife Service migratory bird biologists agree that these maps are some of the best range maps to date. These ranges were clipped to a specific Bird Conservation Region (BCR) or USFWS Region/Regions, if it was indicated in the 2008 list of Birds of Conservation Concern (BCC) that a species was a BCC species only in a particular Region/Regions. Additional modifications have been made to some ranges based on more local or refined range information and/or information provided by U.S. Fish and Wildlife Service biologists with species expertise. All migratory birds that show in areas on land in IPaC are those that appear in the 2008 Birds of Conservation Concern report.

Atlantic Seabirds:

Ranges in IPaC for birds off the Atlantic coast are derived from species distribution models developed by the National Oceanic and Atmospheric Association (NOAA) National Centers for Coastal Ocean Science (NCCOS) using the best available seabird survey data for the offshore Atlantic Coastal region to date. NOAANCCOS assisted USFWS in developing seasonal species ranges from their models for specific use in IPaC. Some of these birds are not BCC species but were of interest for inclusion because they may occur in high abundance off the coast at different times throughout the year, which potentially makes them more susceptible to certain

types of development and activities taking place in that area. For more refined details about the abundance and richness of bird species within your project area off the Atlantic Coast, see the Northeast Ocean Data Portal. The Portal also offers data and information about other types of taxa that may be helpful in your project review.

About the NOAANCCOS models: the models were developed as part of the NOAANCCOS project: Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf. The models resulting from this project are being used in a number of decision-support/mapping products in order to help guide decision-making on activities off the Atlantic Coast with the goal of reducing impacts to migratory birds. One such product is the Northeast Ocean Data Portal, which can be used to explore details about the relative occurrence and abundance of bird species in a particular area off the Atlantic Coast.

All migratory bird range maps within IPaC are continuously being updated as new and better information becomes available.

Can I get additional information about the levels of occurrence in my project area of specific birds or groups of birds listed in IPaC?

Landbirds:

The Avian Knowledge Network (AKN) provides a tool currently called the "Histogram Tool", which draws from the data within the AKN (latest,survey, point count, citizen science datasets) to create a view of relative abundance of species within a particular location over the course of the year. The results of the tool depict the frequency of detection of a species in survey events, averaged between multiple datasets within AKN in a particular week of the year. You may access the histogram tools through the Migratory Bird Programs AKN Histogram Tools webpage.

The tool is currently available for 4 regions (California, Northeast U.S., Southeast U.S. and Midwest), which encompasses the following 32 states: Alabama, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North, Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin.

In the near future, there are plans to expand this tool nationwide within the AKN, and allow the graphs produced to appear with the list of trust resources generated by IPaC, providing you with an additional level of detail about the level of occurrence of the species of particular concern potentially occurring in your project area throughout the course of the year.

Atlantic Seabirds:

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAANCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Not for consultation

Facilities

Wildlife refuges

Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGES AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Not for consultation

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program
625 Broadway, Fifth Floor, Albany, NY 12233-4757
P: (518) 402-8935 | F: (518) 402-8925
www.dec.ny.gov

March 24, 2017

Chris Camacho
Tectonic Engineering
70 Pleasant Hill Road
Mountainville, NY 10953

Re: Washington Park Stormwater Mitigation Project
County: Ulster Town/City: Rosendale

Dear Mr. Camacho:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

Enclosed is a report of rare or state-listed animals and plants, and significant natural communities that our database indicates occur in the vicinity of the project site.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our database. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

Our database is continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 3 Office, Division of Environmental Permits, at dep.r3@dec.ny.gov, (845) 256-3054.

Sincerely,

Nicholas Conrad
Information Resources Coordinator
New York Natural Heritage Program

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The following state-listed animals have been documented in the vicinity of the project site.

The following list includes animals that are listed by NYS as Endangered, Threatened, or Special Concern; and/or that are federally listed or are candidates for federal listing.

For information about any permit considerations for the project, please contact the Permits staff at the NYSDEC Region 3 Office at dep.r3@dec.ny.gov, (845) 256-3054. For information about potential impacts of the project on these species, and how to avoid, minimize, or mitigate any impacts, contact the Region 3 Wildlife staff at Wildlife.R3@dec.ny.gov, (845) 256-3098.

The following species have been documented about .5 mile from the project site. Individual animals may travel 2.5 miles or more from documented locations.
The main impact of concern for bats is the removal of potential roost trees.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Indiana Bat *Hibernaculum*	*Myotis sodalis*	Endangered	Endangered	10910
Northern Long-eared Bat *Hibernaculum*	*Myotis septentrionalis*	Threatened	Threatened	14129

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the listed animals in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NYSDEC at www.dec.ny.gov/animals/7494.html.

The following significant natural community has been documented adjacent to the project site.

We recommend that potential onsite and offsite impacts of the proposed project on this community be addressed as part of any environmental assessment or review conducted as part of the planning, permitting and approval process, such as reviews conducted under SEQR. Final requirements of the project to avoid, minimize, or mitigate potential impacts are determined by the lead permitting agency or the government body approving the project.

The following significant natural communities are considered significant from a statewide perspective by the NY Natural Heritage Program. They are either occurrences of a community type that is rare in the state, or a high quality example of a more common community type. By meeting specific, documented criteria, the NY Natural Heritage Program considers these community occurrences to have high ecological and conservation value.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*HERITAGE CONSERVATION STATUS*
Upland/Terrestrial Communities			
Limestone Woodland			High Quality Occurrence of Rare Community Type
Greater Rosendale woods, including on west side of project site: The woodland is medium-sized, in good condition, and located in many patches among a relatively intact forest.			9429

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

Information about many of the natural community types in New York, including identification, dominant and characteristic vegetation, distribution, conservation, and management, is available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org. For descriptions of all community types, go to www.dec.ny.gov/animals/97703.html for Ecological Communities of New York State.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
3817 Luker Road
Cortland, NY 13045

May 18, 2017

Ms. Alicia Shultz
Senior Environmental Scientist
Governor's Office of Storm Recovery
NYS Homes & Community Renewal
38-40 State Street, 408N, Hampton Plaza
Albany, NY 12207

Dear Ms. Shultz:

This responds to your May 11, 2017, letter regarding the proposed Washington Park Stormwater Mitigation Project located in the Town of Rosendale, Ulster County, New York. We understand that U.S. Department of Housing and Urban Development's (HUD) funding may be involved with the proposed project.

As you are aware, federal agencies, have responsibilities under Section 7 of the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to consult with the U.S. Fish and Wildlife Service (Service) regarding projects that may affect federally listed species or designated critical habitat, and confer with the Service regarding projects that are likely to jeopardize federally proposed species and/or adversely modify proposed critical habitat. We understand that NYS Homes & Community Renewal (NYSHCR) has been designated HUD's non-federal representative for the purposes of completing informal consultation pursuant to Section 7(a)(2) of the ESA.

On behalf of HUD, the NYSHCR determined the proposed project may affect, but is not likely to adversely affect, the federally listed endangered Indiana bat (*Myotis sodalis*) or federally listed threatened northern long-eared bat (*Myotis septentrionalis*). Fourteen potential roost trees are proposed for removal during the bats' active season. The NYSHCR will conduct a visual emergence survey the night prior to the proposed tree removal, and if no bats are observed, the trees will be cut the following day. If bats are observed, the NYSHCR will contact our office prior to proceeding with the project. Given the project location (no known nearby roosts), minimal amount of tree removal, and incorporation of a visual survey, we concur with your determination. The NYSHCR also determined the project will result in no impacts to the federally listed threatened bog turtle (*Clemmys [=Glyptemys] muhlenbergii*) as there is no suitable habitat in the area. We have no further comments on this species.

No further coordination or consultation under the ESA is required with the Service at this time. Should project plans change, or if additional information on listed or proposed species or critical habitat becomes available, this determination may be reconsidered. The most recent compilation of federally listed and proposed endangered and threatened species in New York is available for your information. Until the proposed project is complete, we recommend that you check our website every 90 days from the date of this letter to ensure that listed species presence/absence information for the proposed project is current.*

In addition to the above-referenced determinations regarding federally listed or proposed species, you have also determined that the project will result in no effects to the bald eagle (*Haliaeetus leucocephalus*). As you are aware, bald eagles have been delisted pursuant to the ESA, but remain protected under the Migratory Bird Treaty Act (MBTA) (40 Stat. 755; 16 U.S.C. 703-712), the Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended; 16 U.S.C. 668 *et seq.*), and by the State of New York. If eagles are found within the project area, we recommend that the project sponsor follow the Bald Eagle Management Guidelines found on our website.

The above comments pertaining to endangered species under our jurisdiction are provided pursuant to the ESA, MBTA, and BGEPA. This response does not preclude additional Service comments under other legislation.

Any additional information regarding the proposed projects and their potential to impact listed species should be coordinated with both this office and with the New York State Department of Environmental Conservation.

Thank you for your time. If you require additional information or assistance please contact Robyn Niver at 607-753-9334. Future correspondence with us on this project should reference project file 17I2190.

Sincerely,

David A. Stilwell
Field Supervisor

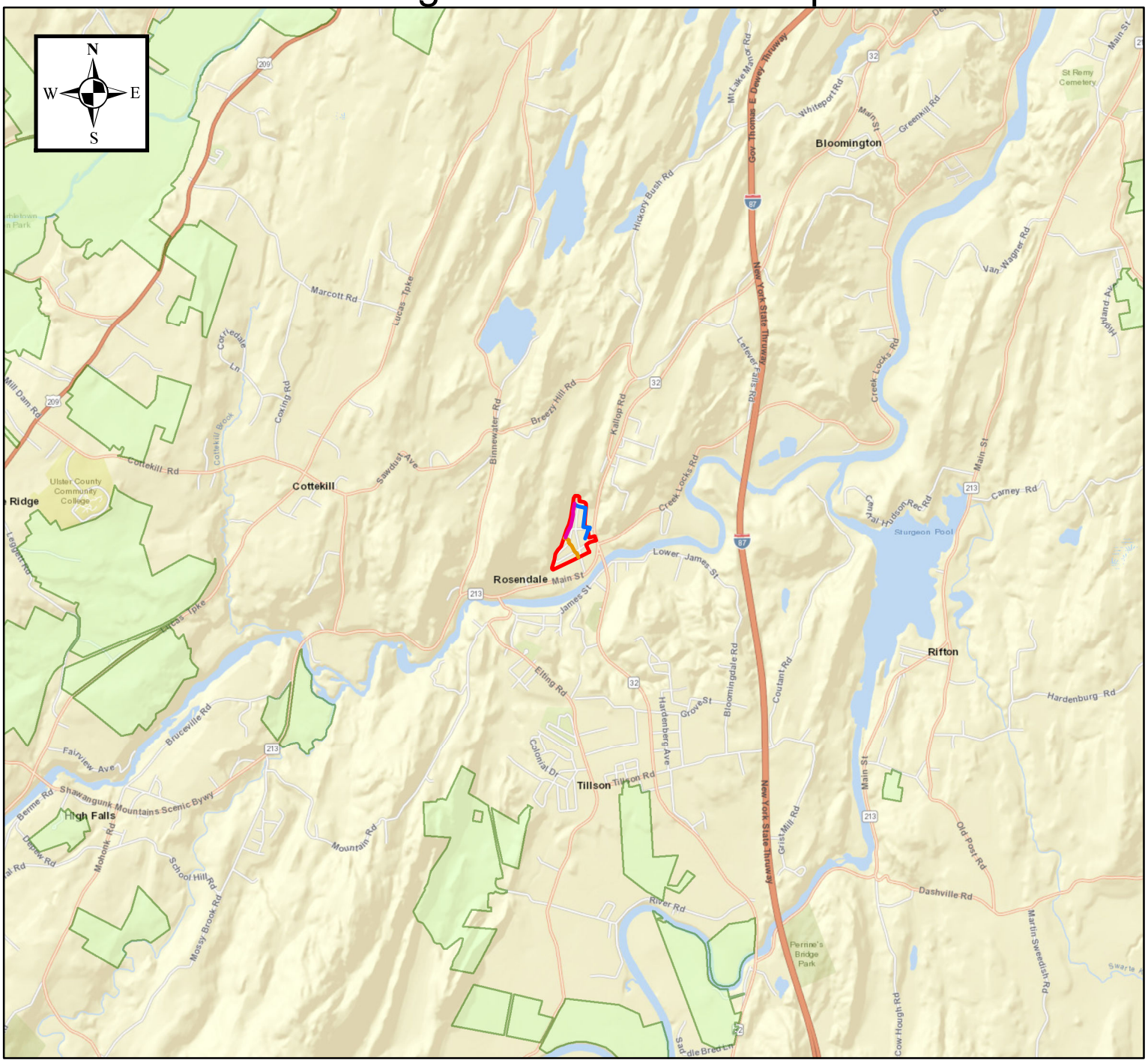
*Additional information referred to above may be found on our website at: http://www.fws.gov/northeast/nyfo/es/section7.htm.

cc: NYSDEC, New Paltz, NY (Env. Permits)

Attachment 9

NYS Agricultural Districts Map,
USDA NRCS Soil Resource Map,
USDA Soil Properties Rating Report,
USDA NRCS Farmland Classification Map,
& Ulster County Municipal Zoning Map

Agricultural District Map



TECTONIC

Practical Solutions, Exceptional Service

0 2,500 5,000 10,000 Feet

1:50,000

Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

Created: 3/6/2017

NYS Agricultural District Map data provided by Cornell University Geospatial Information Repository and available at http://cugir.mannlib.cornell.edu/datatheme.jsp?id=2

Legend

Approximate Work Locations

- **Eastern Drainage System**
- **Mountain Swale**
- **Western Drainage System**
- **Washington Park (Approximate Boundary)**
- **Agricultural Districts (2016)**

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Ulster County, New York

Washington Park Stormwater Mitigation

May 9, 2017

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

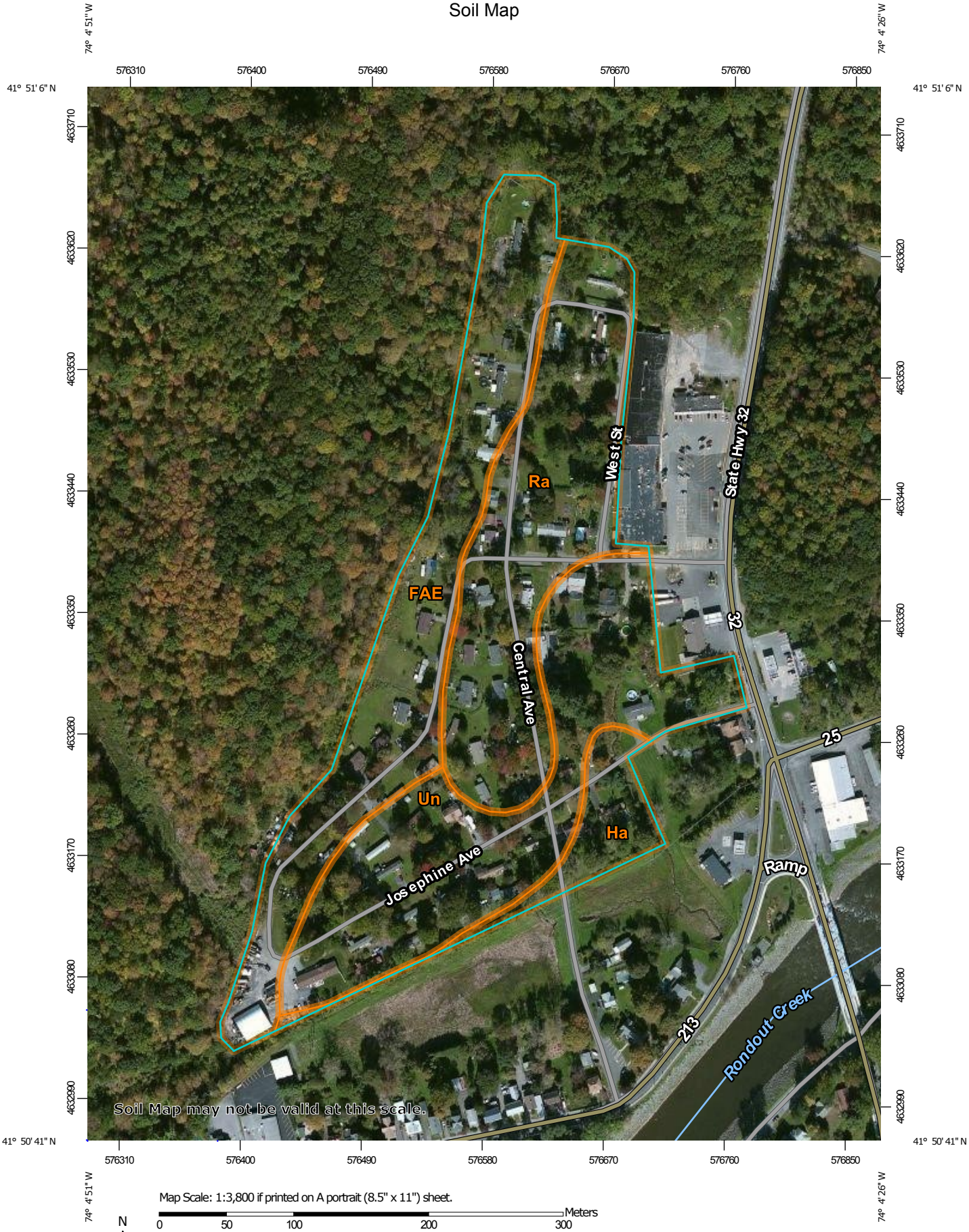
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:3,800 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Ulster County, New York
Survey Area Data: Version 14, Sep 24, 2016

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

Date(s) aerial images were photographed: Mar 20, 2011—Oct 10, 2011

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

Map Unit Legend

Ulster County, New York (NY111)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
FAE	Farmington-Rock outcrop complex, steep	8.1	30.6%
Ha	Hamlin silt loam	1.6	6.2%
Ra	Raynham silt loam	7.9	30.1%
Un	Unadilla silt loam	8.7	33.1%
Totals for Area of Interest		**26.3**	**100.0%**

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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

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

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

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

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

Ulster County, New York

FAE—Farmington-Rock outcrop complex, steep

Map Unit Setting

National map unit symbol: 9xgf
Elevation: 100 to 900 feet
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Farmington and similar soils: 45 percent
Rock outcrop: 30 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Farmington

Setting

Landform: Benches, ridges, till plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till or congeliturbate derived from limestone, dolomite, shale, and sandstone, and in many places mixed with wind and water deposits

Typical profile

O - 0 to 1 inches: slightly decomposed plant material
H1 - 1 to 6 inches: gravelly silt loam
H2 - 6 to 16 inches: gravelly silt loam
H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 25 to 60 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Available water storage in profile: Very low (about 2.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 25 to 60 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Very low to very high (0.00 to 19.98 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydric soil rating: Unranked

Minor Components

Lordstown

Percent of map unit: 5 percent
Hydric soil rating: No

Nassau

Percent of map unit: 5 percent
Hydric soil rating: No

Plainfield

Percent of map unit: 5 percent
Hydric soil rating: No

Stockbridge

Percent of map unit: 5 percent
Hydric soil rating: No

Valois

Percent of map unit: 5 percent
Hydric soil rating: No

Ha—Hamlin silt loam

Map Unit Setting

National map unit symbol: 9xgj
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Hamlin and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hamlin

Setting

Landform: Flood plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Silty alluvium mainly from areas of siltstone, shale, and limestone

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 38 inches: silt loam
H3 - 38 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Available water storage in profile: High (about 10.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Scio

Percent of map unit: 5 percent
Hydric soil rating: No

Haven

Percent of map unit: 5 percent
Hydric soil rating: No

Teel

Percent of map unit: 5 percent
Hydric soil rating: No

Tioga

Percent of map unit: 5 percent
Hydric soil rating: No

Udifluvents

Percent of map unit: 5 percent
Hydric soil rating: No

Ra—Raynham silt loam

Map Unit Setting

National map unit symbol: 9xj3
Elevation: 50 to 500 feet
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Raynham and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Raynham

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Glaciolacustrine, eolian, or old alluvial deposits, comprised mainly of silt and very fine sand

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 37 inches: silt loam
H3 - 37 to 56 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Available water storage in profile: High (about 11.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Canandaigua

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Madalin

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Scio

Percent of map unit: 5 percent
Hydric soil rating: No

Unadilla

Percent of map unit: 5 percent
Hydric soil rating: No

Williamson

Percent of map unit: 5 percent
Hydric soil rating: No

Un—Unadilla silt loam

Map Unit Setting

National map unit symbol: 9xk2
Elevation: 600 to 1,800 feet
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Unadilla

Setting

Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Glaciolacustrine deposits, eolian deposits, or old alluvium, comprised mainly of silt and very fine sand

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 40 inches: silt loam
H3 - 40 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Available water storage in profile: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Raynham

Percent of map unit: 5 percent
Hydric soil rating: No

Riverhead

Percent of map unit: 5 percent
Hydric soil rating: No

Scio

Percent of map unit: 5 percent
Hydric soil rating: No

Suncook

Percent of map unit: 5 percent
Hydric soil rating: No

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Building Site Development

Building site development interpretations are designed to be used as tools for evaluating soil suitability and identifying soil limitations for various construction purposes. As part of the interpretation process, the rating applies to each soil in its described condition and does not consider present land use. Example interpretations can include corrosion of concrete and steel, shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping.

Shallow Excavations (Washington Park Stormwater Mitigation)

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by

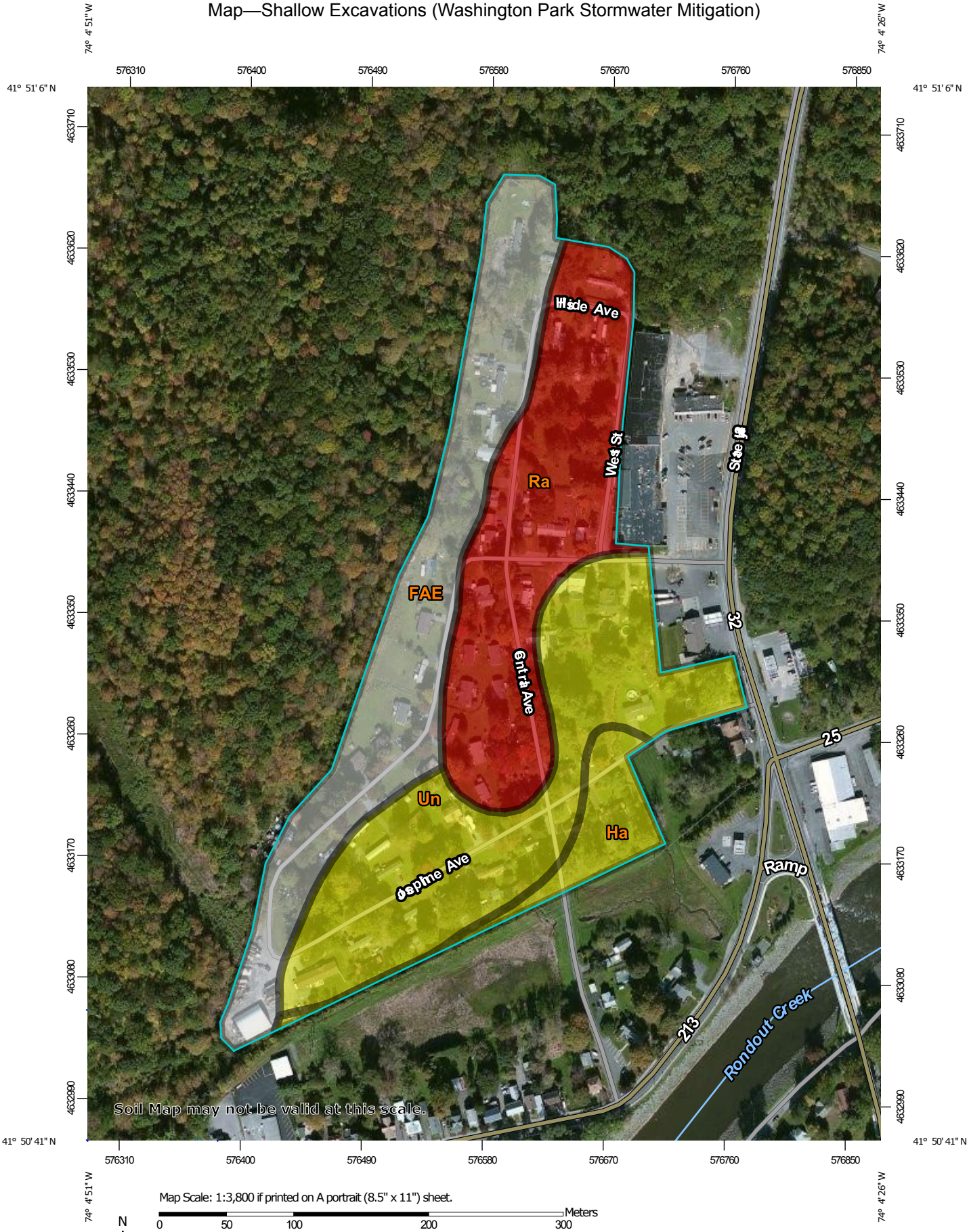
special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Custom Soil Resource Report
Map—Shallow Excavations (Washington Park Stormwater Mitigation)



Map Scale: 1:3,800 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

Very limited

Somewhat limited

Not limited

Not rated or not available

Soil Rating Lines

Very limited

Somewhat limited

Not limited

Not rated or not available

Soil Rating Points

Very limited

Somewhat limited

Not limited

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Ulster County, New York
Survey Area Data: Version 14, Sep 24, 2016

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

Date(s) aerial images were photographed: Mar 20, 2011—Oct 10, 2011

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

Tables—Shallow Excavations (Washington Park Stormwater Mitigation)

Shallow Excavations— Summary by Map Unit — Ulster County, New York (NY111)						
Map unit symbol	**Map unit name**	**Rating**	**Component name (percent)**	**Rating reasons (numeric values)**	**Acres in AOI**	**Percent of AOI**
FAE	Farmington-Rock outcrop complex, steep	Not rated	Rock outcrop (30%)		8.1	30.6%
			Lordstown (5%)			
			Nassau (5%)			
			Plainfield (5%)			
			Stockbridge (5%)			
			Valois (5%)			
Ha	Hamlin silt loam	Somewhat limited	Hamlin (75%)	Flooding (0.60)	1.6	6.2%
				Depth to saturated zone (0.35)		
				Unstable excavation walls (0.01)		
				Dusty (0.01)		
Ra	Raynham silt loam	Very limited	Raynham (75%)	Depth to saturated zone (1.00)	7.9	30.1%
				Unstable excavation walls (0.01)		
				Dusty (0.01)		
Un	Unadilla silt loam	Somewhat limited	Unadilla (80%)	Unstable excavation walls (0.01)	8.7	33.1%
				Dusty (0.01)		
Totals for Area of Interest					**26.3**	**100.0%**

Shallow Excavations— Summary by Rating Value		
Rating	**Acres in AOI**	**Percent of AOI**
Somewhat limited	10.3	39.2%
Very limited	7.9	30.1%
Null or Not Rated	8.1	30.6%
Totals for Area of Interest	**26.3**	**100.0%**

Rating Options—Shallow Excavations (Washington Park Stormwater Mitigation)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Farmland Classification (Washington Park Stormwater Mitigation)

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Custom Soil Resource Report
Map—Farmland Classification (Washington Park Stormwater Mitigation)

Map Scale: 1:3,800 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Soil Rating Lines

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Soil Rating Points

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Water Features

MAP INFORMATION

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

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

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Ulster County, New York
Survey Area Data: Version 14, Sep 24, 2016

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

Date(s) aerial images were photographed: Mar 20, 2011—Oct 10, 2011

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

Table—Farmland Classification (Washington Park Stormwater Mitigation)

Farmland Classification— Summary by Map Unit — Ulster County, New York (NY111)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
FAE	Farmington-Rock outcrop complex, steep	Not prime farmland	8.1	30.6%
Ha	Hamlin silt loam	All areas are prime farmland	1.6	6.2%
Ra	Raynham silt loam	Prime farmland if drained	7.9	30.1%
Un	Unadilla silt loam	All areas are prime farmland	8.7	33.1%
Totals for Area of Interest			**26.3**	**100.0%**

Rating Options—Farmland Classification (Washington Park Stormwater Mitigation)

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

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Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

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Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

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United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

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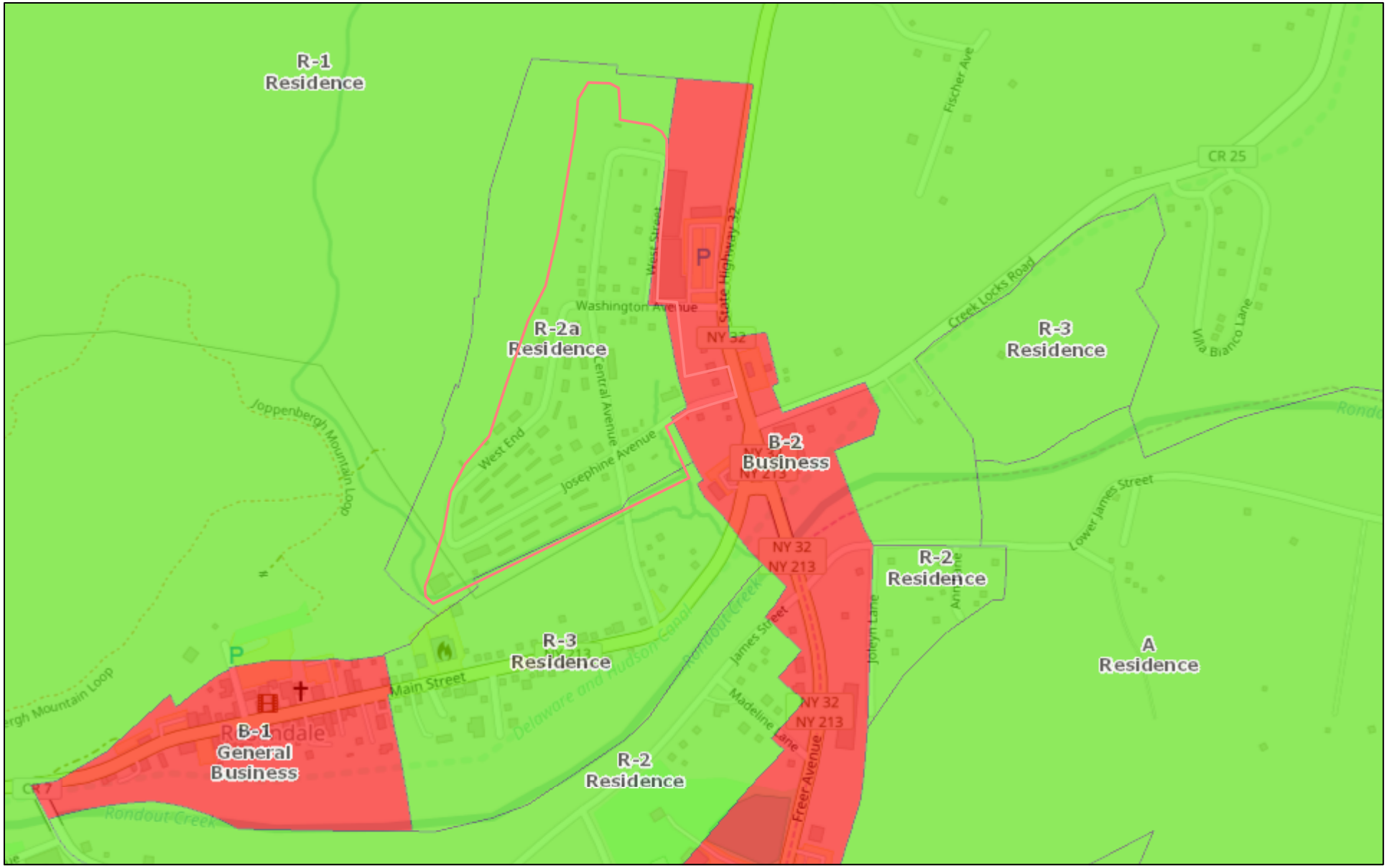
United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Ulster County Parcel Viewer



May 5, 2017

1:9,028

0 0.075 0.15 0.3 mi

0 0.1 0.2 0.4 km

Ulster County Municipal Zoning Map

Washington Park (Approximate Boundary)

Attachment 8

State Historic and Tribal Historic Preservation Office Documentation:

SHPO Response
Delaware Nation Response
Delaware Tribe Response
Stockbridge-Munsee Community, Band of Mohicans Response
Affidavit of Mailing for THPO
Letter Sent to Delaware Nation
Letter Sent to Delaware Tribe of Indians
Letter Sent to Mohawk Nation
Letter Sent to St. Regis Tribe
Letter Sent to Stockbridge-Munsee Community Band of Mohicans

NEW YORK STATE OF OPPORTUNITY.
Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ROSE HARVEY
Commissioner

March 16, 2017

Ms. Dina Peoples
Geologist II
Tectonic Engineering
70 Pleasant Hill Road
Mountainville, NY 10953

Re: HUD
Washington Park Stormwater Mitigation Project
Town of Rosendale, Ulster County, NY
17PR01469

Dear Ms. Peoples:

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). We have reviewed the project in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

Based upon this review, the New York SHPO has determined that no historic properties will be affected by this undertaking.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Michael F. Lynch, P.E., AIA

Director, Division for Historic Preservation

Gievers, Andrea

From: Shirley, Lori (NYSHCR) <Lori.Shirley@nyshcr.org>
Sent: Wednesday, March 22, 2017 12:24 PM
To: Gievers, Andrea; Barthelme, Mary (STORMRECOVERY)
Subject: FW: Section 106 Compliance for the Washington Park Stormwater Mitigation Project, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, New York

Delaware Nation response.

From: Barthelme, Mary (STORMRECOVERY)
Sent: Wednesday, March 22, 2017 10:47 AM
To: Shirley, Lori (NYSHCR)
Subject: FW: Section 106 Compliance for the Washington Park Stormwater Mitigation Project, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, New York

FYI

Added to the H drive and smartsheet.

From: Kimberly Penrod [mailto:kpenrod@delawarenation.com]
Sent: Wednesday, March 22, 2017 10:33 AM
To: Barthelme, Mary (STORMRECOVERY) <Mary.Barthelme@stormrecovery.ny.gov>
Subject: RE: Section 106 Compliance for the Washington Park Stormwater Mitigation Project, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, New York

ATTENTION: This email came from an external source. Do not open attachments or click on links from unknown senders or unexpected emails.

The Delaware Nation Cultural Preservation Department received correspondence regarding the following referenced project(s):

Washington Park Storm water Mitigation Project, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, New York

Our office is committed to protecting tribal heritage, culture and religion with particular concern for archaeological sites potentially containing burials and associated funerary objects.

The Lenape people occupied the area indicated in your letter during prior to European contact until their eventual removal to our present locations. According to our files, the location of the proposed project does not endanger known cultural, or religious sites of interest to the Delaware Nation. **Please continue with the project as planned** keeping in mind during construction should an archaeological site or artifacts inadvertently be uncovered, all construction and ground disturbing activities should immediately be halted until the appropriate state agencies, as well as this office, are notified (within 24 hours), and a proper archaeological assessment can be made.

Please note the Delaware Nation, the Delaware Tribe of Indians, and the Stockbridge Munsee Band of Mohican Indians are the only Federally Recognized Delaware/Lenape entities in the United States and consultation must be made only with designated staff of these three tribes. We appreciate your cooperation in contacting the Delaware Nation Cultural Preservation Office to conduct proper Section 106 consultation. Should you have any questions, feel free to contact our offices at 405/247-2448 or by email:
Kim Penrod at kpenrod@delawarenation.com or Jason Ross at jross@delawarenation.com

Respectfully,

Kim Penrod
Delaware Nation
Director
106, Archives, Library and Museum
405.247.2448 x 1403
405-924-9485 Cell
kpenrod@delawarenation.com

From: Barthelme, Mary (STORMRECOVERY) [mailto:Mary.Barthelme@stormrecovery.ny.gov]
Sent: Monday, March 20, 2017 3:06 PM
To: Kimberly Penrod
Subject: RE: Section 106 Compliance for the Washington Park Stormwater Mitigation Project, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, New York

And the third email with all attachments now sent.

Thank you,

Mary

From: Barthelme, Mary (STORMRECOVERY)
Sent: Monday, March 20, 2017 4:09 PM
To: 'kpenrod@delawarenation.com' <kpenrod@delawarenation.com>
Subject: RE: Section 106 Compliance for the Washington Park Stormwater Mitigation Project, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, New York

Hello Kim,

I believe the first email I sent did not go through. I will now try to send 2 more emails, splitting all docs up to make sure it can go through.

Thank you,

Mary

From: Barthelme, Mary (STORMRECOVERY)
Sent: Monday, March 20, 2017 3:27 PM
To: 'kpenrod@delawarenation.com' <kpenrod@delawarenation.com>
Cc: Shirley, Lori (NYSHCR) <Lori.Shirley@nyshcr.org>
Subject: Section 106 Compliance for the Washington Park Stormwater Mitigation Project, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, New York

Dear Kim,

Please find attached to this email a Section 106 consultation request for the above-mentioned project in New York State, Ulster County. The Governor's Office of Storm Recovery is the entity responsible for compliance with the HUD

environmental review procedures set forth in 24 CFR Part 58. I had previously been communicating and working with Nekole Alligood for any consultations requests for the Delaware Nation.

I am sending two emails as the size of the documents exceeds the limit of a normal inbox.

Please let me know if you have any questions.

Thank you,

Mary Barthelme

Mary Barthelme
Environmental and Historic Preservation Specialist
Governor's Office of Storm Recovery
99 Washington Avenue, Suite 1224, Albany NY 12260
O: (518) 473-0154 I C: (646) 706-6748 I F: (518) 474-6102 I
Mary.Barthelme@stormrecovery.ny.gov
www.stormrecovery.ny.gov

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Delaware Tribe Historic Preservation Representatives
P.O. Box 64
Pocono Lake, PA 18347
sbachor@delawaretribe.org

May 9, 2017

Governor's Office of Storm Recovery
New York State Homes & Community Renewal
38-40 State Street, Hampton Plaza
Albany, NY 12207

Re: Section 106 Compliance for the Washington Park Stormwater Mitigation Project, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, New York

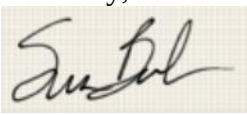
Ms. Shirley,

Thank you for sending the Delaware Tribe additional information regarding the above referenced project. Our review indicates that there are no culturally significant areas within the proposed project area. We have no objection to the proposed project.

In the event a concentration of artifacts and/or in the unlikely event any human remains are accidentally unearthed during the project that all work is halted until the Delaware Tribe of Indians is informed of the inadvertent discovery and a qualified archaeologist can evaluate the find.

We appreciate your cooperation and look forward to working together on our shared interests in preserving Delaware cultural heritage. If you have any questions, feel free to contact this office by phone at (610) 761-7452 or by e-mail at sbachor@delawaretribe.org..

Sincerely,



Susan Bachor
Delaware Tribe Historic Preservation Representative

Gievers, Andrea

From: Shirley, Lori (NYSHCR) <Lori.Shirley@nyshcr.org>
Sent: Thursday, March 23, 2017 11:41 AM
To: Gievers, Andrea; Barthelme, Mary (STORMRECOVERY)
Subject: FW: Section 106 Compliance for the Washington Park Stormwater Mitigation Project, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, New York

Thanks, Mary.
Andrea, for the ERR.

From: Barthelme, Mary (STORMRECOVERY)
Sent: Thursday, March 23, 2017 10:06 AM
To: Shirley, Lori (NYSHCR) <Lori.Shirley@nyshcr.org>
Subject: FW: Section 106 Compliance for the Washington Park Stormwater Mitigation Project, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, New York

FYI for you.

From: Bonney Hartley [mailto:Bonney.Hartley@mohican-nsn.gov]
Sent: Thursday, March 23, 2017 10:02 AM
To: Barthelme, Mary (STORMRECOVERY) <Mary.Barthelme@stormrecovery.ny.gov>
Subject: RE: Section 106 Compliance for the Washington Park Stormwater Mitigation Project, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, New York

ATTENTION: This email came from an external source. Do not open attachments or click on links from unknown senders or unexpected emails.

Hi Mary,
I have completed review of the Washington Park Stormwater Mitigation Project, Rosendale, Ulster County NY. On behalf of Stockbridge Munsee Community I confirm we do not have significant cultural resource concerns.
As always, we ask that the applicant provide immediate notice should there be inadvertent cultural resource discoveries.
Thank you,
Bonney

Bonney Hartley
Tribal Historic Preservation Officer
Stockbridge-Munsee Mohican Tribal Historic Preservation
New York Office
65 1st Street
Troy, NY 12180

(518) 244-3164
Bonney.Hartley@mohican-nsn.gov
www.mohican-nsn.gov

From: Barthelme, Mary (STORMRECOVERY) [mailto:Mary.Barthelme@stormrecovery.ny.gov]
Sent: Monday, March 20, 2017 3:07 PM

To: Bonney Hartley
Cc: Shirley, Lori (NYSHCR)
Subject: Section 106 Compliance for the Washington Park Stormwater Mitigation Project, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, New York

Dear Bonney,

Please see the attached consultation for the above-mentioned project. I am sending two emails as the size of the documents exceeds the limit of a normal inbox.

A hard copy is being sent today by mail. Please let me know if you have any questions.

Thank you,

Mary Barthelme

Mary Barthelme
Environmental and Historic Preservation Specialist
Governor's Office of Storm Recovery
99 Washington Avenue, Suite 1224, Albany NY 12260
O: (518) 473-0154 I C: (646) 706-6748 I F: (518) 474-6102 I
Mary.Barthelme@stormrecovery.ny.gov
www.stormrecovery.ny.gov

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Affidavit of Mailing

STATE OF NEW YORK)
: SS. :
COUNTY OF ALBANY)

MARY BARTHELME, being duly sworn, deposes and says:

1. I am over the age of eighteen years.
2. On March 20, 2017, I mailed true and correct copies of the annexed Rosendale Washington Park Tribal Consultations dated March 20, 2017 by placing the same in first class post-paid envelopes addressed: SEE ATTACHED LIST.
3. On said day, I deposited said envelopes in a mailbox at 99 Washington Avenue, Albany, New York 12210.

Mary Barthelme

Sworn to before me this
22 day of March, 2017

Notary Public

Stephanie Maier
Notary Public, State of New York
Qualified in Rensselaer County
No. 01MA6337406
Commission Expires February 22, 2020

Ron LaFrance, Jr.; Paul Thompson;
and Beverly Cook, Chiefs
St. Regis Mohawk Tribe
412 State Route 37
Akwesasne, NY 13655

Shannon Holsey, President
Stockbridge-Munsee Community,
Band of the Mohicans
N8476 Moh He Con Nuck Road
Bowler, WI 54416

Chet Brooks, Chief
Delaware Tribe of Indians, Delaware
Tribal Headquarters
5100 Tuxedo Blvd
Bartlesville, OK 74006

Mohawk Nation Council of Chiefs
Of Haudenosaunee Six Nations
Confederacy
Akwesasne Territory Box 336
Via Rooseveltown, NY 13683-0366

Governor's Office of
Storm Recovery

ANDREW M. CUOMO
Governor

LISA BOVA-HIATT
Executive Director

March 20, 2017

Kerry Holton, President
Delaware Nation
P.O. Box 825
Anadarko, OK 73005

Re: Section 106 Compliance for the Washington Park Stormwater Mitigation Project, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, NY

Dear President Kerry Holton:

Pursuant to the Disaster Relief Appropriations Act, 2013 (Public Law 113-2) and the Housing and Community Development Act (42 U.S.C. § 5301 et seq.), the Governor's Office of Storm Recovery (GOSR), an office of New York State Homes and Community Renewal's Housing Trust Fund Corporation as a recipient of Community Development Block Grant – Disaster Recovery ("CDBG-DR") funds from the United States Department of Housing and Urban Development ("HUD"), is serving as the entity responsible for compliance with the HUD environmental review procedures set forth in 24 CFR Part 58. GOSR is acting on behalf of HUD in providing the enclosed project information and inviting this discussion with your Nation to respond with any concerns or comments.

GOSR processes environmental reviews for projects funded with HUD CDBG-DR on a case-by-case basis. In accordance with Section 101(d)(6)(B) of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470a), and its implementing regulations, 36 Code of Federal Regulations (CFR) Part 800, this letter serves as notification of the proposed action. This consultation is being sent to the Delaware Nation, Delaware Tribe of Indians, Mohawk Nation, Saint Regis Mohawk Tribe, and the Stockbridge-Munsee Community Band of Mohicans.

Area of Potential Effect: The Washington Park Stormwater Mitigation Project ("Proposed Project") involves the installation of culvert pipes, drainage ditches, swales, catch basins, a storm sewer manhole, and a pedestrian bridge in the Town of Rosendale, Ulster County, New York. Washington Park, the residential area located northwest of the intersection of New York State (NYS) Route 32 and NYS Route 213, has been subjected to historic, chronic flooding during large rain events. The proposed drainage improvements will effectively convey water during 50-year storm events and alleviate chronic flooding problems. The project location is identified on the enclosed street map and USGS topographic map.

Project Description: CDBG-DR funding is proposed for the improvement of two defined drainageways that cross through the Washington Park area. Runoff from a hill/mountain to the

northeast and runoff from the hillside adjacent to Fann's Plaza are conveyed by storm sewers to an extant United States Army Corps of Engineers (USACE) ponding area located on the south side of the Site (hereafter referred to as the Eastern Drainage System). Runoff from a hill/mountain to the west is conveyed via a swale at the base of the mountain to a storm sewer system that crosses under West End Avenue and Josephine Avenue to an existing USACE ponding area on the west side of Central Avenue (hereafter referred to as the Western Drainage System).

Improvement of the Eastern Drainage System will involve the construction of the following: a drainage swale along Hillside Avenue; a new storm sewer along West Street (from Hillside Avenue to Washington Avenue); a new storm sewer on Washington Avenue (from West Street to where it crosses under Washington Avenue); and a new storm sewer from Washington Avenue to the USACE ponding area. An existing USACE ponding area will also be regraded to provide a uniform alignment and cross sectional area that is consistent with the original USACE Rondout Creek Flood Control design. Proposed Eastern Drainage System improvements will include the installation of 181 linear feet (LF) of 48" diameter HDPE culvert pipe, 46 LF of 36" diameter HDPE culvert pipe, 745 LF of 24" diameter HDPE culvert pipe, 46 LF of 18" diameter HDPE culvert pipe, nine catch basins, and one storm sewer manhole. There are a total of eight trees located east of NYS Route 32 and south of Washington Avenue to be removed for project construction. These trees are situated between residential and commercial properties.

Improvement of the Western Drainage System will involve the construction of a drainage swale along the mountainside from the intersection of Central Avenue and Hillside Avenue to SBL# 62.82-1-4 (37 West End Avenue) and a new storm sewer from SBL# 62.82-1-4 (37 West End Avenue) to the existing USACE ponding area on the south side of Josephine Avenue. The Western Drainage System will be designed with a filter fabric lined trench and one perforated 30" HDPE pipe to provide positive relief of any potential shallow groundwater levels. Shallow groundwater would drain by gravity through a one-foot thick stone layer under the pipe and the perforated pipe. Proposed Western Drainage System improvements will include the installation of 1,002 LF of 30" diameter HDPE culvert pipe (dual culvert 501 LF) and five catch basins. The proposed mountainside drainage swale crosses through nine private properties. During construction, four trees will be removed from West End Avenue and two trees will be removed on Josephine Avenue, where the proposed drainage system would intersect the roadway. These trees are located in the right-of-way adjacent to residential properties. Temporary construction easements and permanent drainage maintenance easements will have to be obtained. The project engineering design plans are included with this letter for your review.

With this letter, GOSR respectfully submits for your review the attached documentation for the proposed project described herein. GOSR initiated consultation with the New York State Historic Preservation Office and their concurrence indicating that no historic properties will be affected, dated March 16, 2017, is included with this letter for your records. If the Area of Potential Effect encompasses historic properties of religious or cultural significance to your Nation, please respond within 30 days or sooner. Additionally, please indicate if there are other sources of information or other parties, Nations, Tribes, or members of the public you believe should be included in the consultation process. Please respond by email or in writing to the address listed below.

Lori A. Shirley
Director, Bureau of Environmental Review and Assessment, GOSR
New York State Homes & Community Renewal
38-40 State St. 408N, Hampton Plaza
Albany, New York 12207

If you have any questions or require additional information regarding this request, please feel free to contact me at (518) 474-0755 or via email at Lori.Shirley@nyshcr.org. Thank you for your time and consideration.

Sincerely,

Lori A. Shirley
Director, Bureau of Environmental Review and Assessment, GOSR

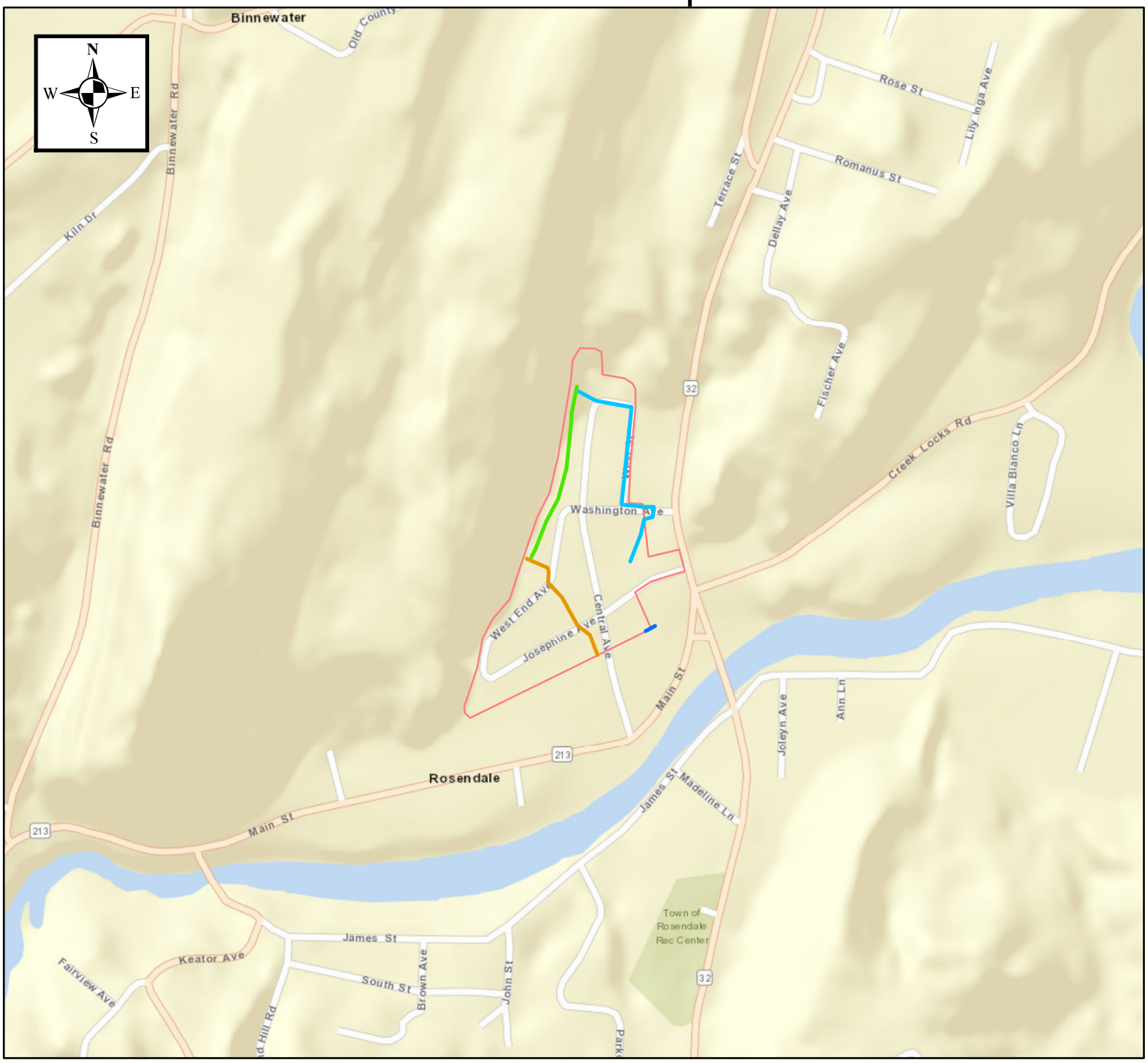
Enclosures:
Project Location Maps
Project Engineering Design Plans
NYSHPO No Affect Letter

Electronic letter sent to:
Janice Maddox, Tribal Administrator
Delaware Nation
P.O. Box 825
Anadarko, OK 73005

Attachment 1

Street Map,
Topographic Map,
& Aerial Photograph

Location Map



TECTONIC

Practical Solutions, Exceptional Service

0 500 1,000 2,000 Feet

1:10,000

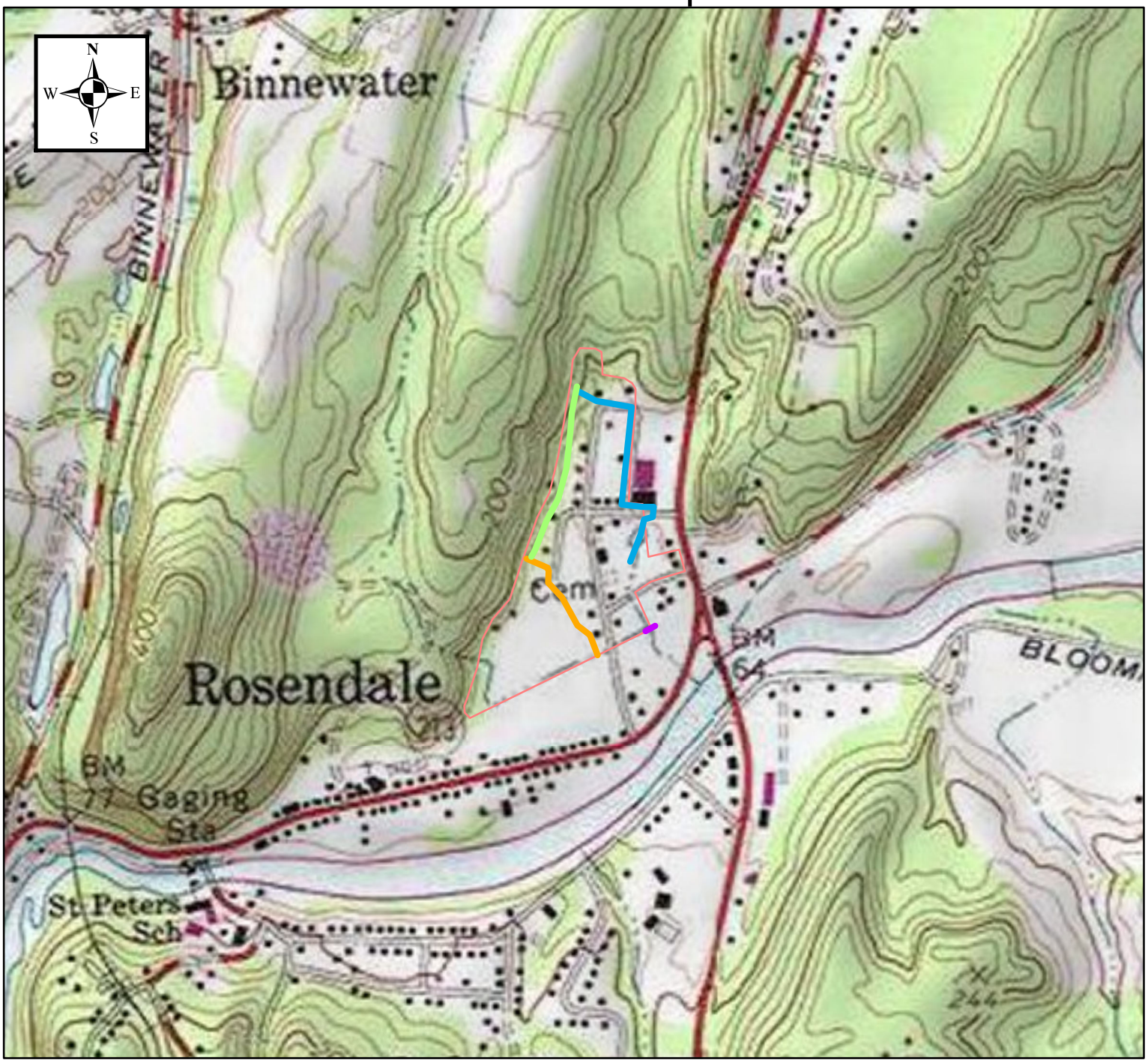
Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

Legend

Approximate Work Locations

- **Eastern Drainage System**
- **Mountain Swale**
- **Western Drainage System**
- **Pedestrian Bridge**
- **Washington Park (Approximate Boundary)**

Location Map



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0 500 1,000 2,000 Feet

1:10,000

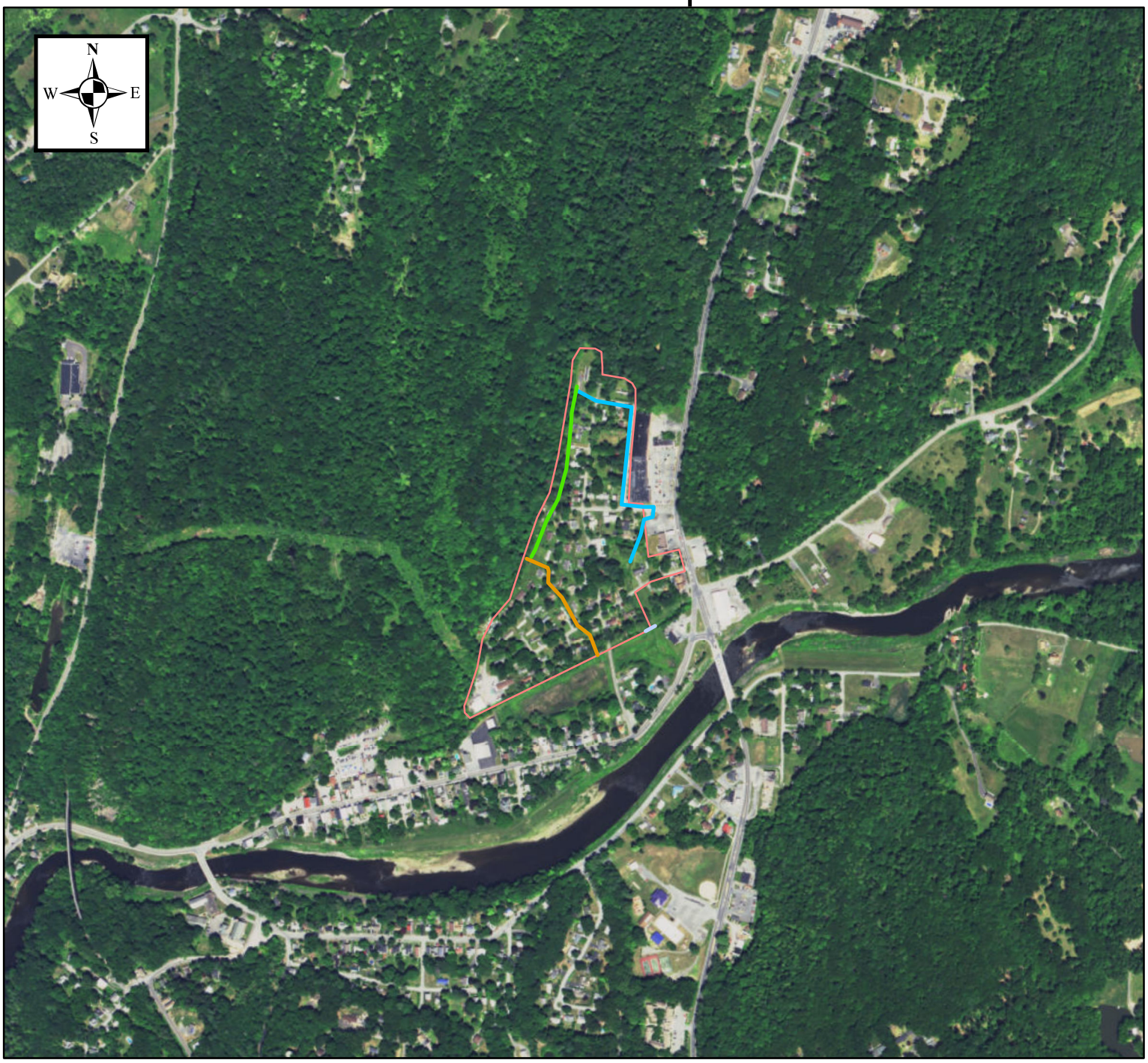
Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

Legend

Approximate Work Locations

- **Eastern Drainage System**
- **Mountain Swale**
- **Western Drainage System**
- **Pedestrian Bridge**
- **Washington Park (Approximate Boundary)**

Location Map



TECTONIC
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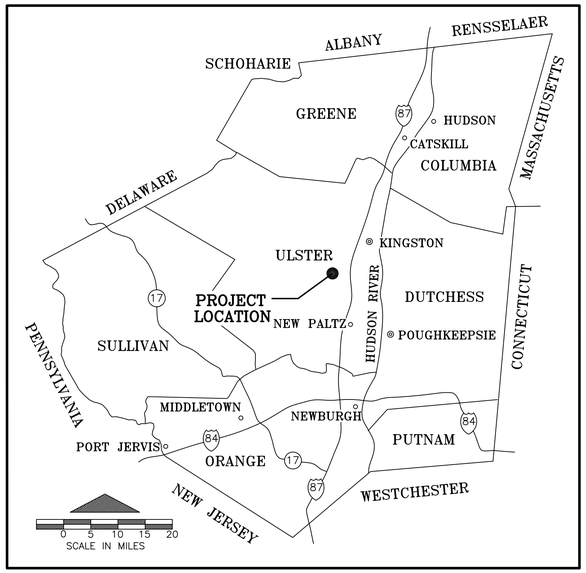
1:10,000

Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

Legend

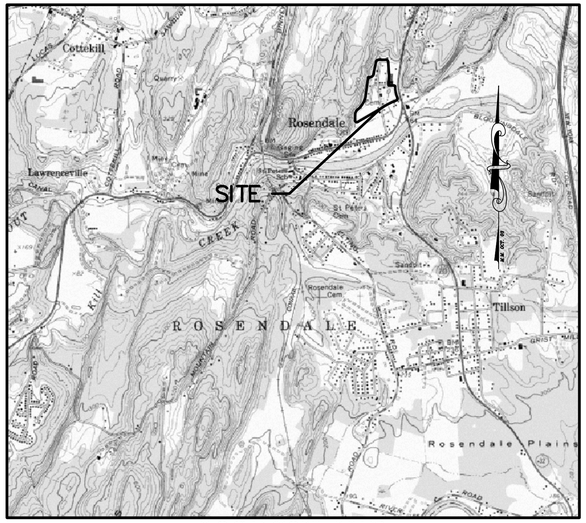
Approximate Work Locations

- **Eastern Drainage System**
- **Mountain Swale**
- **Western Drainage System**
- **Pedestrian Bridge**
- **Washington Park (Approximate Boundary)**



GENERAL LOCATION MAP

AERIAL VIEW



LOCATION MAP
ROSENDALE QUADRANGLE
7.5' MINUTE USGS TOPOGRAPHIC MAP
SCALE: 1" = 2000'

CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION

NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNOR'S OFFICE OF STORM RECOVERY

TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

TOWN OFFICIALS

JEANNE L. WALSH, TOWN SUPERVISOR

TOWN COUNCIL
JOHN P. HUGHES
JENNIFER METZGER
CHRISTOPHER PRYLOPSKI
FRANK KLEPEIS
ROBERT S. GALLAGHER, HIGHWAY SUPERINTENDENT
MANDY CONSTABLE, TOWN CLERK

FEBRUARY 2017

FINAL DESIGN FOR AGENCY REVIEW

SHEET INDEX

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	KEY MAP
3.	EXISTING CONDITIONS 1, EASTERN DRAINAGE SYSTEM
4.	EXISTING CONDITIONS 2, EASTERN DRAINAGE SYSTEM
5.	SELECTIVE DEMOLITION, EASTERN DRAINAGE SYSTEM
6.	PLAN AND PROFILE 1, EASTERN DRAINAGE SYSTEM
7.	PLAN AND PROFILE 2, EASTERN DRAINAGE SYSTEM
8.	EXISTING CONDITIONS, WESTERN DRAINAGE SYSTEM
9.	SELECTIVE DEMOLITION, WESTERN DRAINAGE SYSTEM
10.	PLAN AND PROFILE, WESTERN DRAINAGE SYSTEM
11.	EXISTING CONDITIONS, MOUNTAIN SWALE
12.	GRADING PLAN, MOUNTAIN SWALE
13.	DETAILS
14.	EROSION AND SEDIMENT CONTROL – EAST
15.	EROSION AND SEDIMENT CONTROL – WEST
16.	EROSION AND SEDIMENT CONTROL – MOUNTAIN SWALE

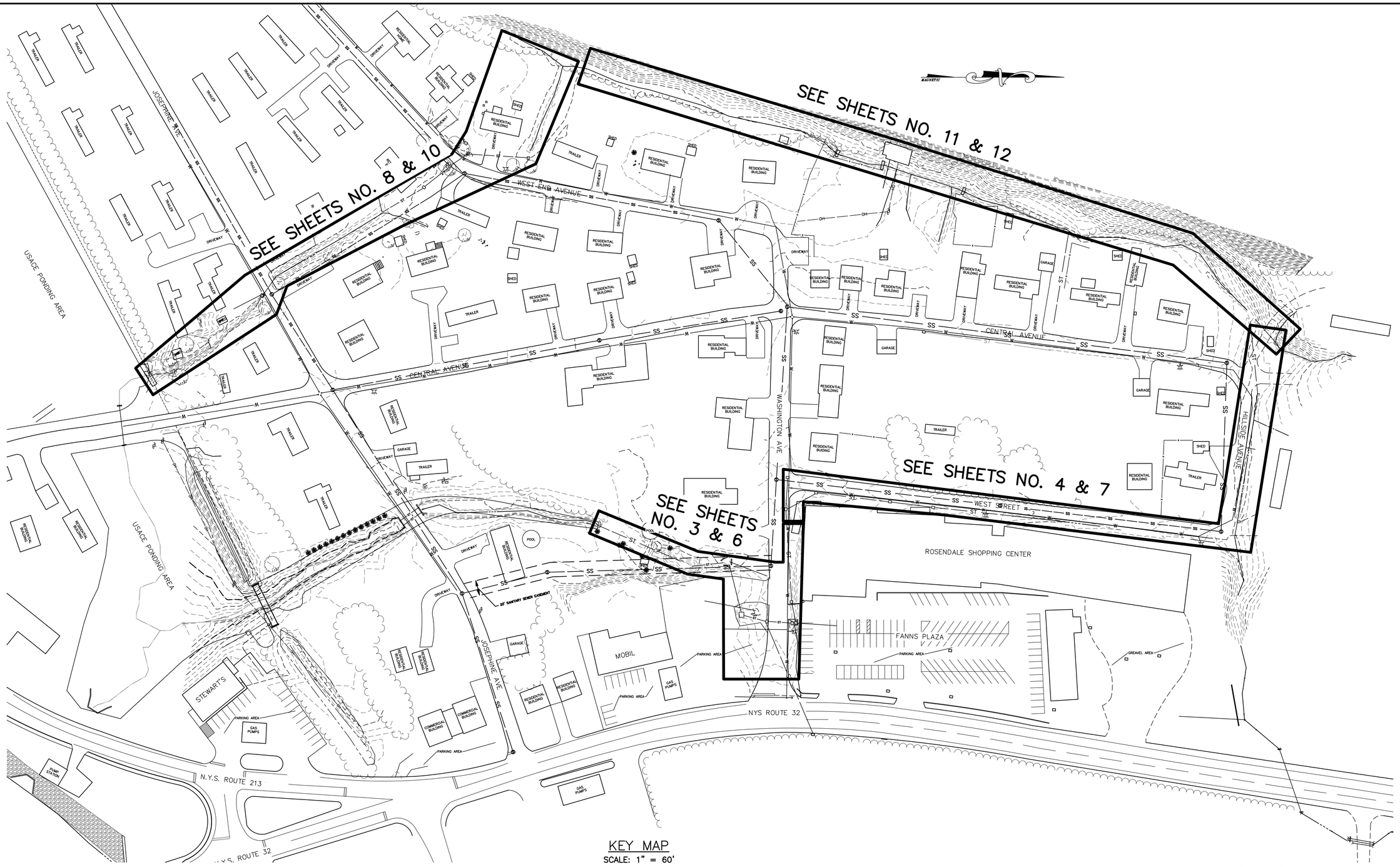
BRINNIER AND LARIOS, P.C.
PROFESSIONAL ENGINEERS AND LAND SURVEYORS
67 MAIDEN LANE
KINGSTON, NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 056741 STATE OF NEW YORK

LICENSED LAND SURVEYOR CHRISTOPHER J. ELLI 49629 STATE OF NEW YORK

Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

811 Know what's below. Call before you dig.



KEY MAP
SCALE: 1" = 60'

KEY MAP
CONTRACT NO. TR-171

NOTE:
The location of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the contractor's failure to exactly locate and preserve any and all underground utilities.

GRAPHIC SCALE IN FEET
60 0 60

LICENSED LAND SURVEYOR
CHRISTOPHER J. TELL
49629
STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER
BENJAMIN M. LARIOS
058747
STATE OF NEW YORK

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WASHINGTON PARK STORMWATER MITIGATION

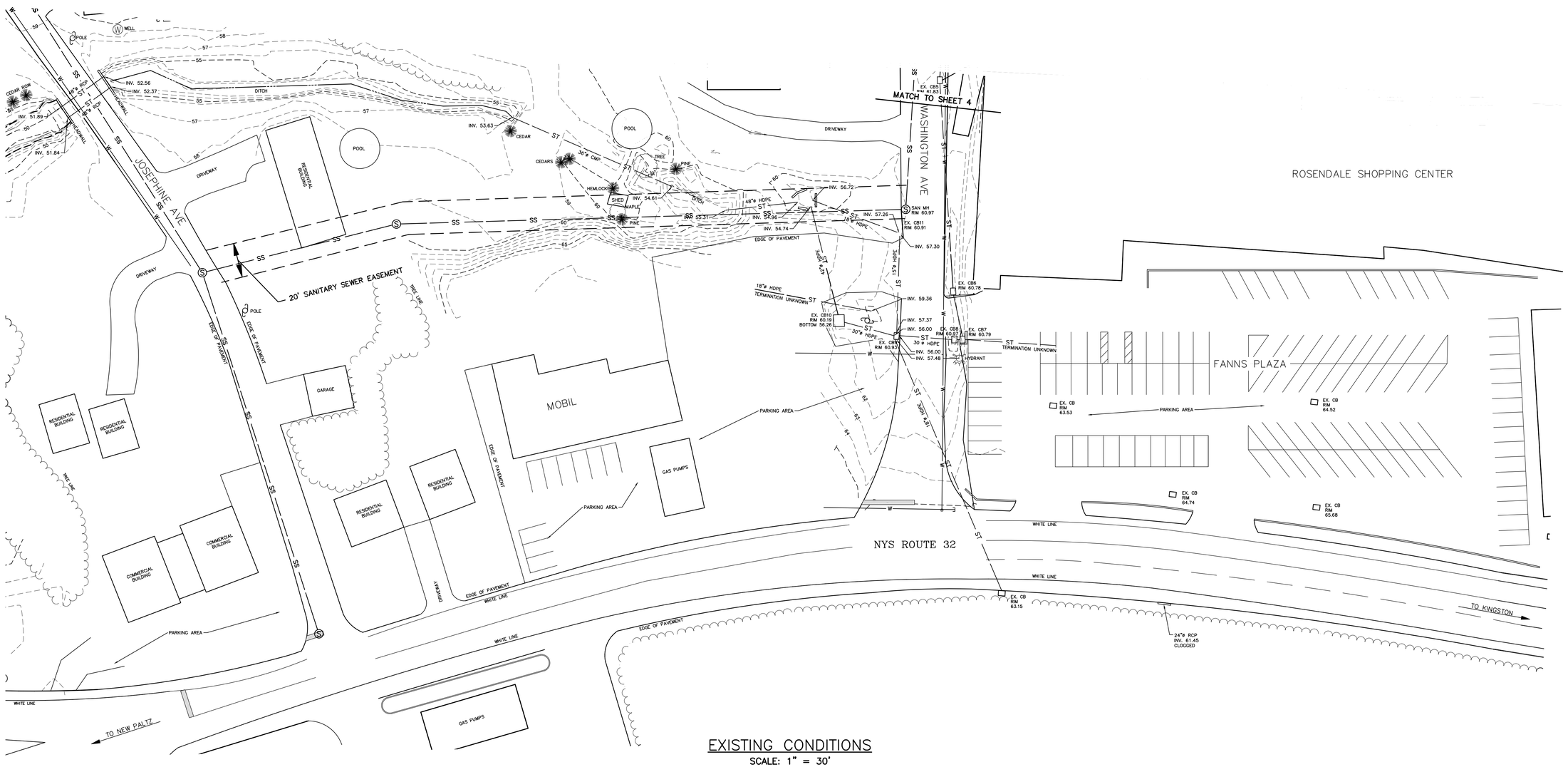
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY

TOWN OF ROSENDALE | ULSTER COUNTY | NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 60'	FEB. 2017		2 OF 16
	DWG RJS	CHK JEM	



EXISTING CONDITIONS

SCALE: 1" = 30'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
X	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:

1. FIELD SURVEY PERFORMED BY BRINNIER AND LARIOS, P.C. ON JUNE 15, 2016, AUGUST 29, 2016 AND NOVEMBER 23, 2016.
2. USACE PONDING AREA BOUNDARY FROM USACE ROSENDALE FLOOD CONTROL PROJECT DRAWING NUMBER CC-RC-209, SHEET 9 OF 79

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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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EXISTING CONDITIONS 1
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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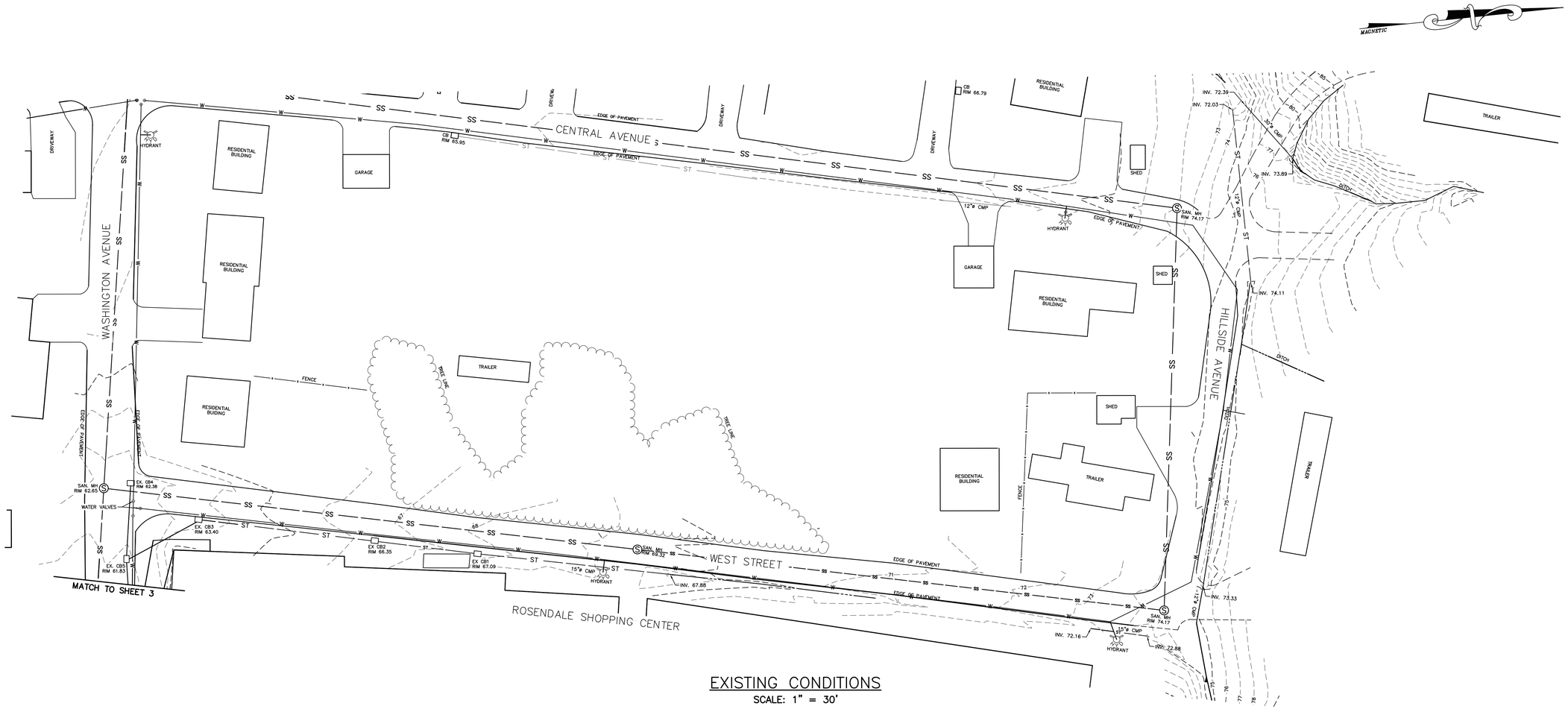
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		3 OF 16
	DWG RJS	CHK JEM	



EXISTING CONDITIONS

SCALE: 1" = 30'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
℄	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:

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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIG M. LARIOS 058747 STATE OF NEW YORK

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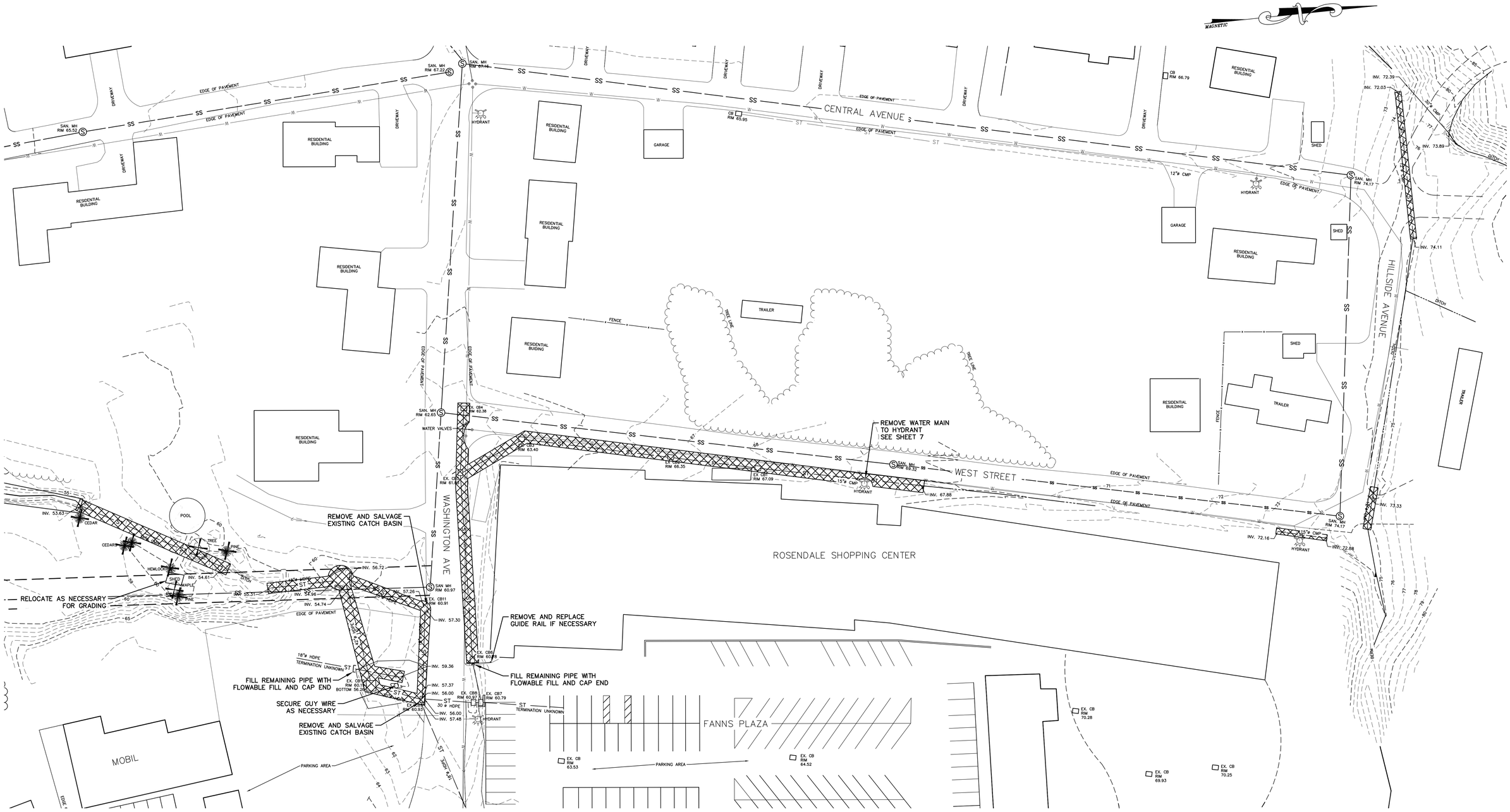
EXISTING CONDITIONS 2
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TS-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		4 OF 16
	DWG RJS	CHK JEM	



SELECTIVE DEMOLITION PLAN

SCALE: 1" = 30'

SELECTIVE DEMOLITION PLAN
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TS-171

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	PROPOSED DEMOLITION
	PROPOSED TREE REMOVAL

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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER BENNO M. LARIOS 058741 STATE OF NEW YORK

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WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
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TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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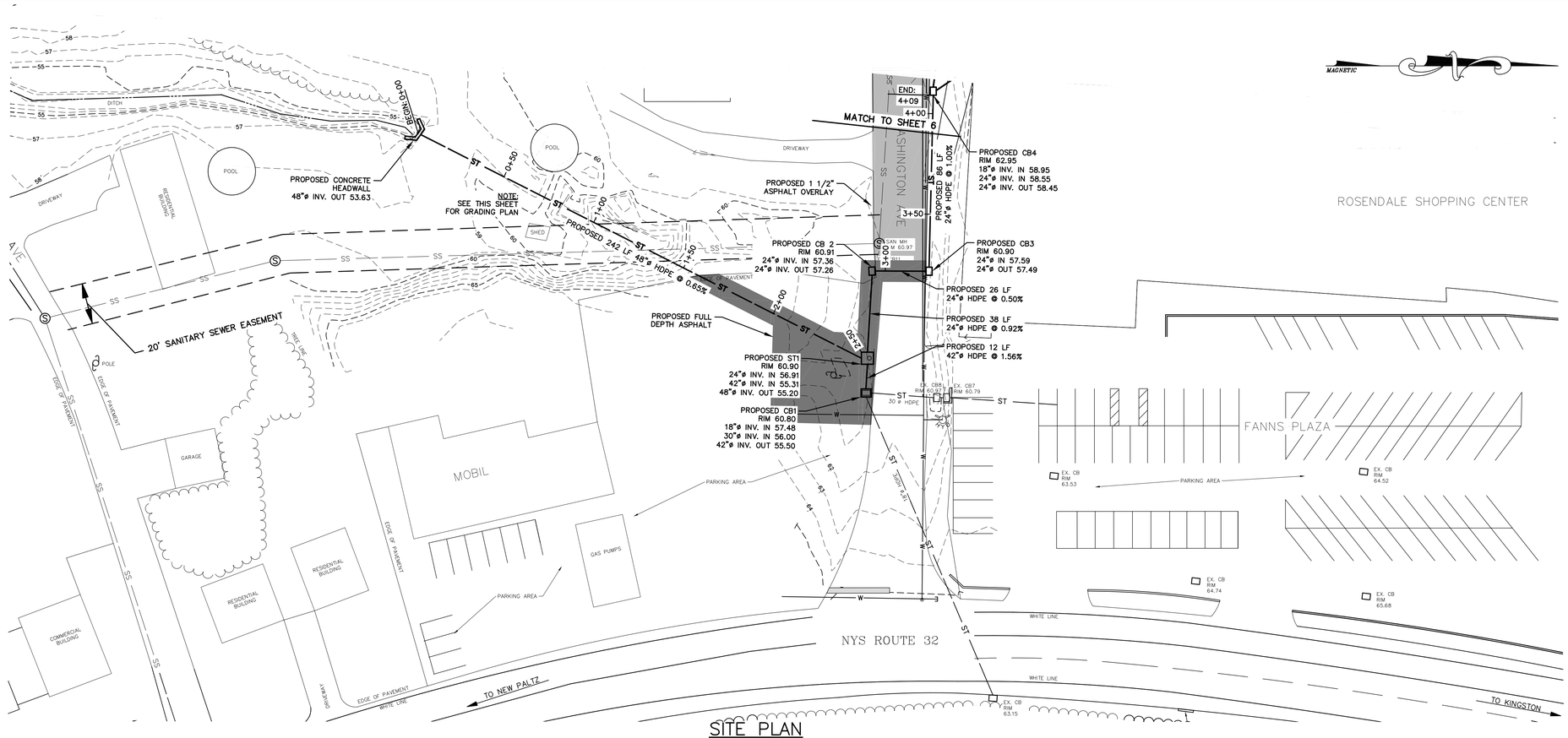
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

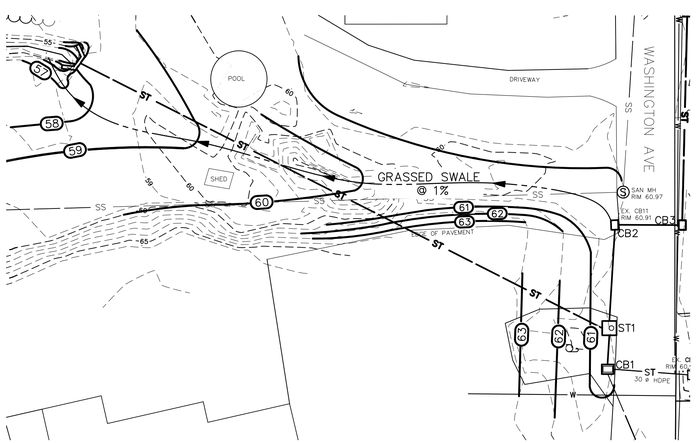
SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		5 OF 16
	DWG RJS	CHK JEM	

DRAINAGE STRUCTURE SCHEDULE					
STRUCTURE	TYPE (ID DIMENSIONS)	RIM ELEV. (FT)	INSIDE HEIGHT (FT)	STORM PIPING	INVERT ELEV. (FT)
ST1	6'x5' MANHOLE W 24" COVER	60.90	6 +/-	24"Ø HDPE IN	56.91
				42"Ø HDPE IN	55.31
				48"Ø HDPE OUT	55.20
CB1	4'x5' CATCH BASIN W F&G	60.80	6 +/-	18"Ø HDPE IN	57.48
				30"Ø HDPE IN	56.00
				42"Ø HDPE OUT	55.50
CB2	4'x4' CATCH BASIN W F&G	60.91	4 +/-	24"Ø HDPE IN	57.36
				24"Ø HDPE OUT	57.26
CB3	4'x4' CATCH BASIN W F&G	60.90	4 +/-	24"Ø HDPE IN	57.59
				24"Ø HDPE OUT	57.49
CB4	4'x4' CATCH BASIN W F&G	62.95	5 +/-	18"Ø HDPE IN	58.95
				24"Ø HDPE IN	58.55
				24"Ø HDPE OUT	58.45

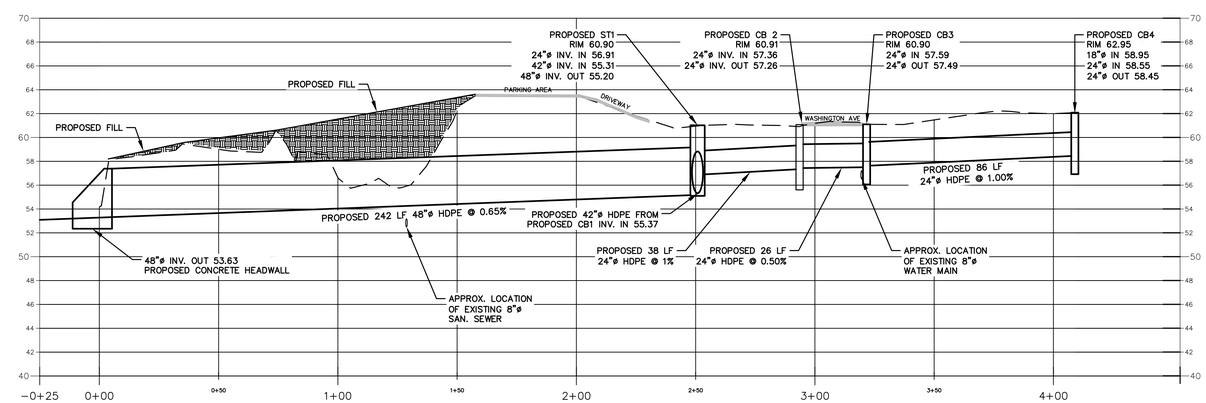
NOTES:
1. SEE PLAN AND PROFILE DRAWINGS FOR ORIENTATION OF PIPES.
2. ALL 4' CB STRUCTURES SHALL HAVE 30" X 48" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #7585 F&G ASSEMBLY OR APPROVED EQUAL.
3. ALL 3' CB STRUCTURES SHALL HAVE 24" X 24" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #5423 F&G ASSEMBLY OR APPROVED EQUAL.



SITE PLAN
SCALE: 1" = 30'



GRADING PLAN
SCALE: 1" = 30'



PROFILE OF STORM SEWER
SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

PLAN AND PROFILE 1
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

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LEGEND

50	CONTOURS (MINOR)		UTILITY POLE	ST	PROPOSED STORM SEWER
52	CONTOURS (MAJOR)		EXISTING HYDRANT		PROPOSED CATCH BASIN
PL	PROPERTY LINE	EX. CB1	EXISTING CATCH BASIN	58	PROPOSED CONTOUR
SS	EXISTING SANITARY SEWER	S	SANITARY MANHOLE		PROPOSED FULL DEPTH ASPHALT PAVEMENT
ST	EXISTING STORM SEWER	M	MANHOLE		PROPOSED 1 1/2" ASPHALT OVERLAY
W	EXISTING WATER LINE				
	DITCH				
	APPROX. TREE LINE				
x	FENCE				

GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER V. FELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER BERNIE M. LARIOS 058747 STATE OF NEW YORK

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WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
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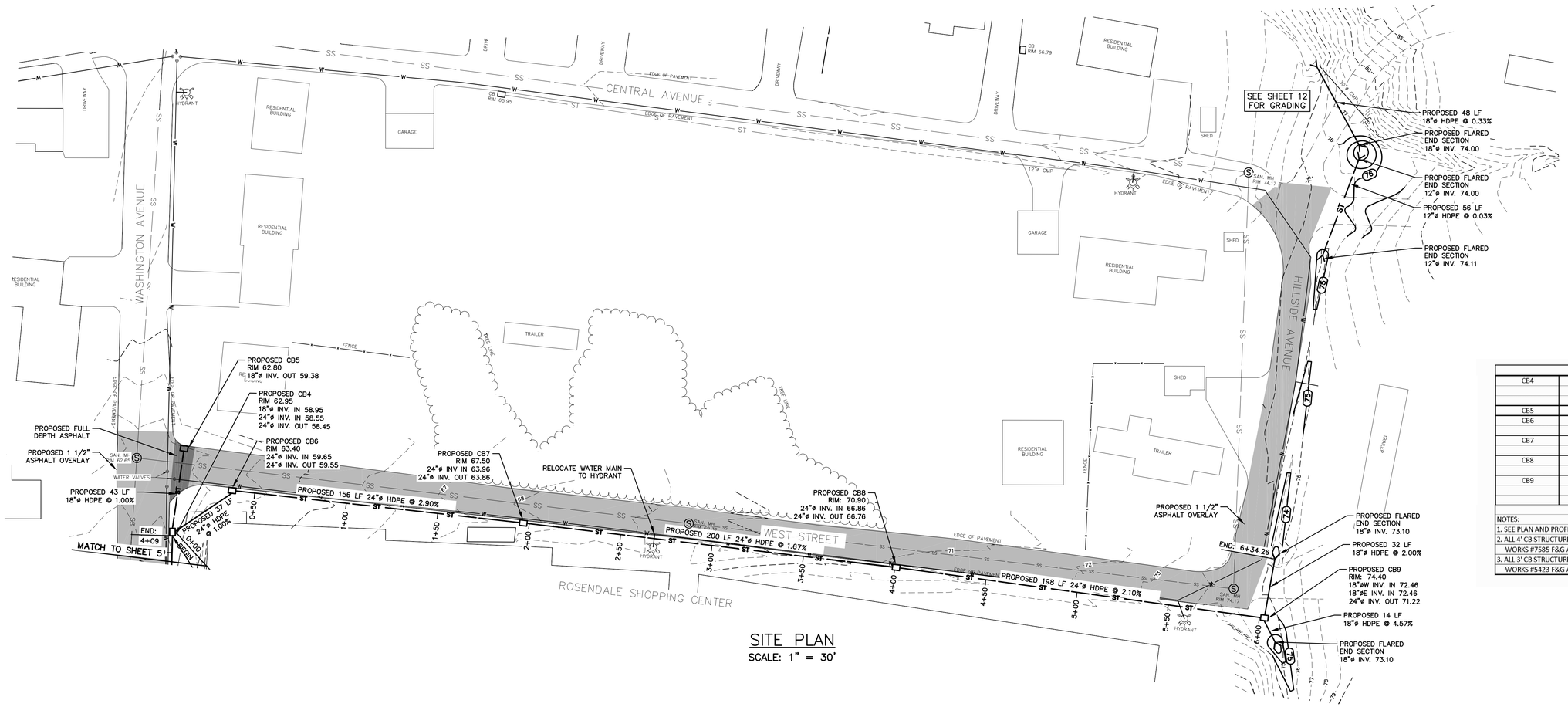

SITE PLAN

SCALE: 1" = 30'

DRAINAGE STRUCTURE SCHEDULE					
CB4	4'x4' CATCH BASIN W F&G	62.95	5 +/-	18"Ø HDPE IN	58.95
				24"Ø HDPE IN	58.55
				24"Ø HDPE OUT	58.45
CB5	3'X3' CATCH BASIN W F&G	62.80	4 +/-	24"Ø HDPE OUT	59.38
CB6	4'x4' CATCH BASIN W F&G	63.40	4 +/-	24"Ø HDPE IN	59.65
				24"Ø HDPE OUT	59.55
CB7	4'x4' CATCH BASIN W F&G	67.50	4 +/-	24"Ø HDPE IN	63.96
				24"Ø HDPE OUT	63.86
CB8	4'x4' CATCH BASIN W F&G	70.90	5 +/-	24"Ø HDPE IN	66.86
				24"Ø HDPE OUT	66.76
CB9	4'x4' CATCH BASIN W F&G	74.40	4 +/-	18"Ø HDPE IN	72.46
				18"Ø HDPE IN	72.46
				24"Ø HDPE OUT	71.22

NOTES:
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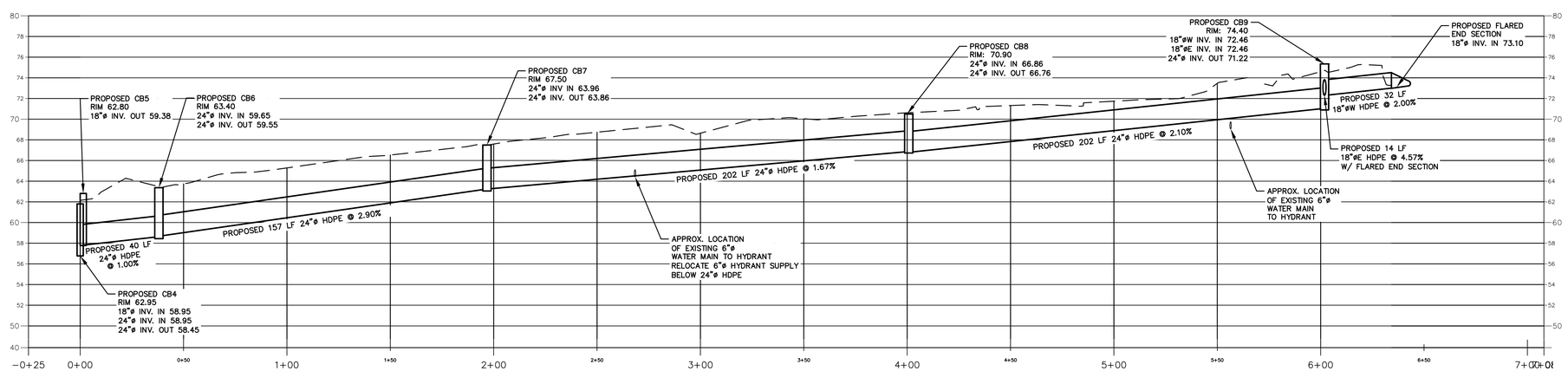
2. ALL 4' CB STRUCTURES SHALL HAVE 30" X 48" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #7585 F&G ASSEMBLY OR APPROVED EQUAL.
3. ALL 3' CB STRUCTURES SHALL HAVE 24" X 24" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #5423 F&G ASSEMBLY OR APPROVED EQUAL.



PROFILE OF STORM SEWER

SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR
- PROPOSED FULL DEPTH ASPHALT PAVEMENT
- PROPOSED 1 1/2" ASPHALT OVERLAY

GRAPHIC SCALE IN FEET
30 0 30

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PLAN AND PROFILE 2
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		7 OF 16
	DWG RJS	CHK JEM	

EXISTING CONDITIONS

SCALE: 1" = 30'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:

1. FIELD SURVEY PERFORMED BY BRINNIER AND LARIOS, P.C. ON JUNE 15, 2016, AUGUST 29, 2016 AND NOVEMBER 23, 2016.
2. USACE PONDING AREA BOUNDARY FROM USACE ROSENDALE FLOOD CONTROL PROJECT DRAWING NUMBER CC-RC-209, SHEET 9 OF 79

NOTE:

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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER SERVIS M. LARIOS 058747 STATE OF NEW YORK

Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

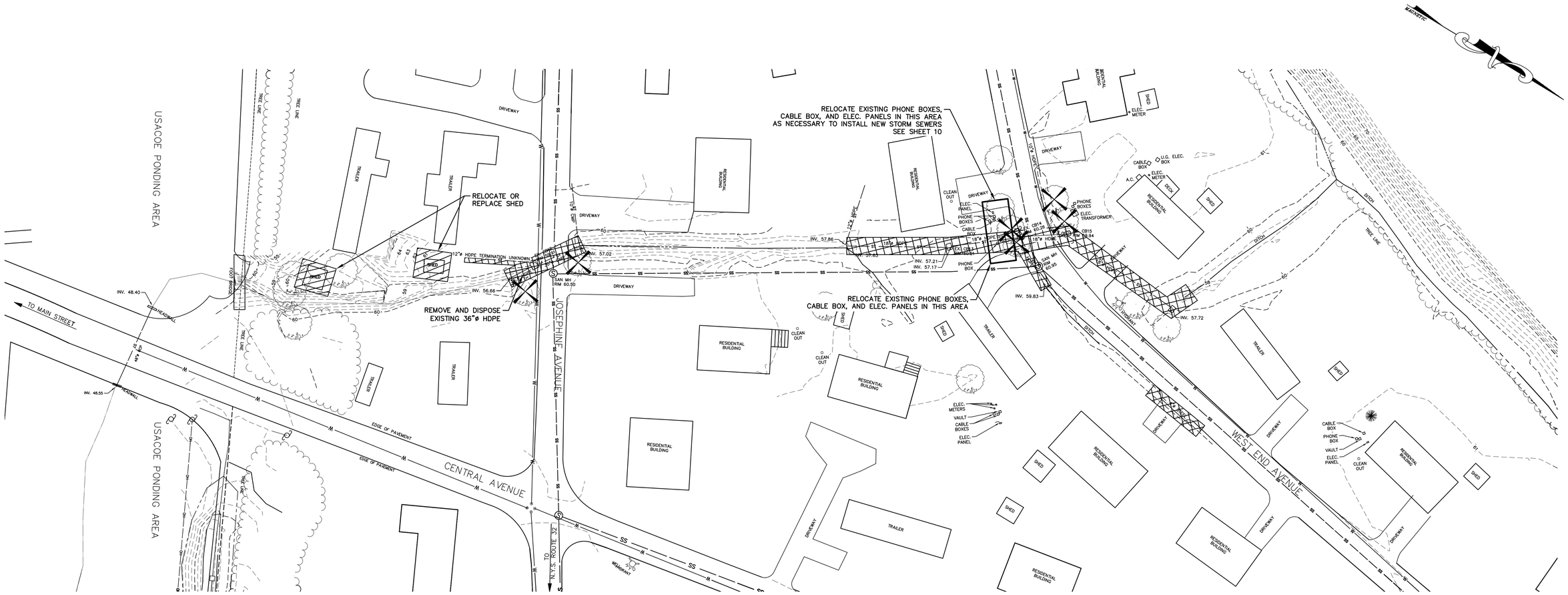
EXISTING CONDITIONS
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		8 OF 16
	DWG RJS	CHK JEM	



SELECTIVE DEMOLITION PLAN

SCALE: 1" = 30'

LEGEND

CONTOURS (MINOR)	UTILITY POLE
CONTOURS (MAJOR)	EXISTING HYDRANT
PROPERTY LINE	EXISTING CATCH BASIN
EXISTING SANITARY SEWER	SANITARY MANHOLE
EXISTING STORM SEWER	MANHOLE
EXISTING WATER LINE	PROPOSED DEMOLITION
DITCH	PROPOSED TREE REMOVAL
APPROX. TREE LINE	
FENCE	

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GRAPHIC SCALE IN FEET
30 0 30

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LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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SELECTIVE DEMOLITION PLAN
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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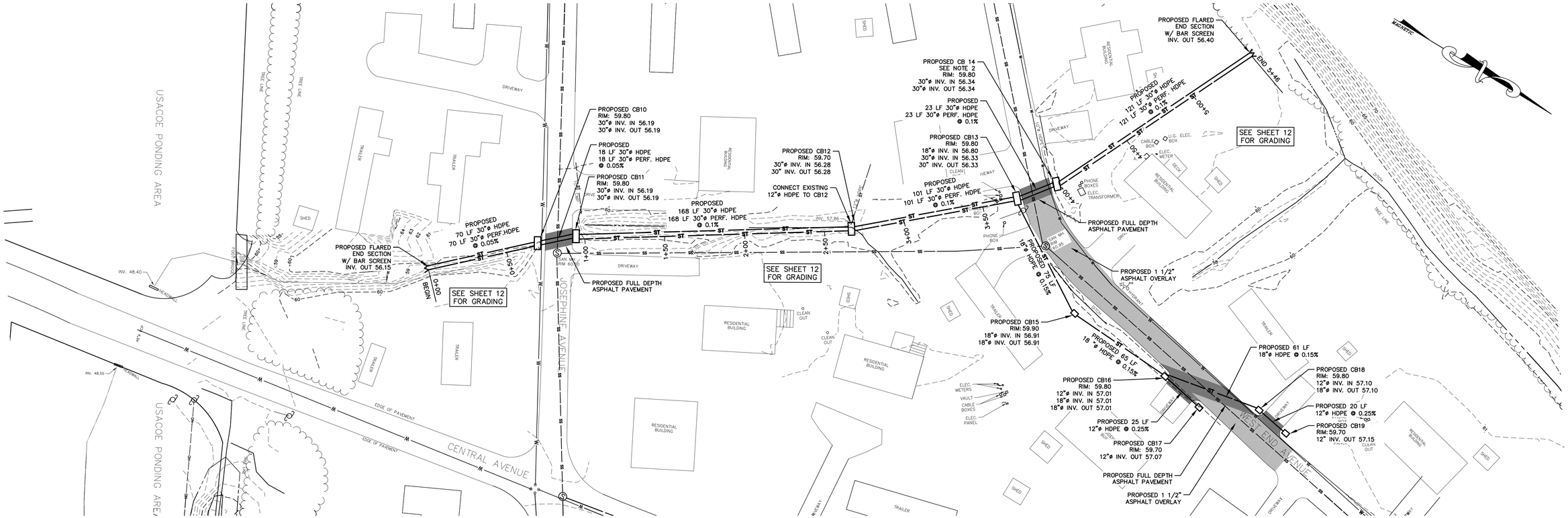
	DWG RJS	CHK JEM	

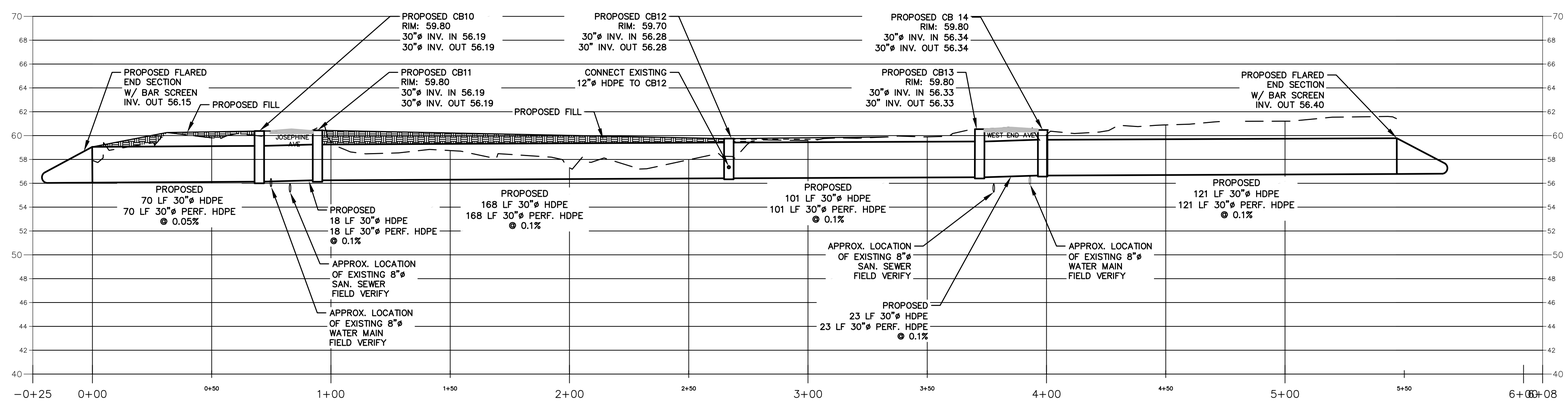


SITE PLAN

SCALE: 1" = 30'

DRAINAGE STRUCTURE SCHEDULE					
CB9	4'x4' CATCH BASIN W F&G	74.40	4 +/-	18"Ø HDPE IN	72.46
				18"Ø HDPE IN	72.46
				24"Ø HDPE OUT	71.22
CB10	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.19
CB11	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.19
CB12	4'X8' CATCH BASIN W F&G	59.80	4	12" HDPE IN	57.86
				2 - 30"Ø HDPE	56.28
CB13	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.33
CB14	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.34
CB15	3'X3' CATCH BASIN W F&G	59.90	4 +/-	18"Ø HDPE	56.91
CB16	4'X4' CATCH BASIN W F&G	59.80	3 +/-	18"Ø HDPE IN	57.01
				12"Ø HDPE IN	57.01
				18"Ø HDPE OUT	57.01
CB17	3'X3' CATCH BASIN W F&G	59.70	3 +/-	12"Ø HDPE OUT	57.05
CB18	3'X3' CATCH BASIN W F&G	59.80	3 +/-	12"Ø HDPE IN	57.10
				18"Ø HDPE OUT	57.10
CB19	3'X3' CATCH BASIN W F&G	59.70	3 +/-	12"Ø HDPE OUT	57.13

NOTES:
1. SEE PLAN AND PROFILE DRAWINGS FOR ORIENTATION OF PIPES.
2. ALL 4' CB STRUCTURES SHALL HAVE 30" X 48" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #7585 F&G ASSEMBLY OR APPROVED EQUAL.
3. ALL 3' CB STRUCTURES SHALL HAVE 24" X 24" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #5423 F&G ASSEMBLY OR APPROVED EQUAL.



PROFILE OF STORM SEWER

SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

LEGEND

50	CONTOURS (MINOR)		UTILITY POLE	ST	PROPOSED STORM SEWER
52	CONTOURS (MAJOR)		EXISTING HYDRANT		PROPOSED CATCH BASIN
PL	PROPERTY LINE	EX. CB1	EXISTING CATCH BASIN	50	PROPOSED CONTOUR
SS	EXISTING SANITARY SEWER	S	SANITARY MANHOLE		PROPOSED FULL DEPTH ASPHALT PAVEMENT
ST	EXISTING STORM SEWER	M	MANHOLE		PROPOSED 1 1/2" ASPHALT OVERLAY
W	EXISTING WATER LINE				
	DITCH				
	APPROX. TREE LINE				
X	FENCE				

NOTE:
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NOTE:
1. FIELD VERIFY TOP OF PIPE ELEVATIONS AT EACH SANITARY CROSSING PRIOR TO INSTALLING ANY STORM SEWER PIPING.
2. CB14 SHALL HAVE AN 8"HIGH X 12"LONG OPENING ON THE SOUTH SIDEWALL AT ELEV. 58.25 FEET.

GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. FELL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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PLAN AND PROFILE
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		10 OF 16
	DWG RJS	CHK JEM	

EXISTING CONDITIONS

SCALE: 1" = 40'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
℄	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:
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GRAPHIC SCALE IN FEET

40 0 40

LICENSED LAND SURVEYOR — CHRISTOPHER J. TELL — 49679 — STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER — DENNIS M. LARIOS — 058741 — STATE OF NEW YORK

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EXISTING CONDITIONS
MOUNTAIN SWALE
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE — ULSTER COUNTY — NEW YORK

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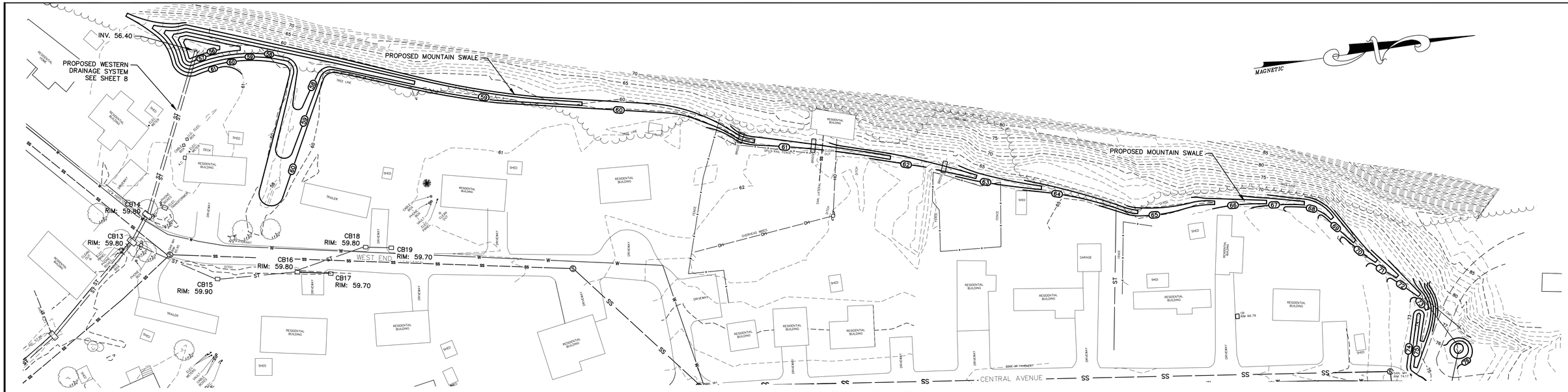
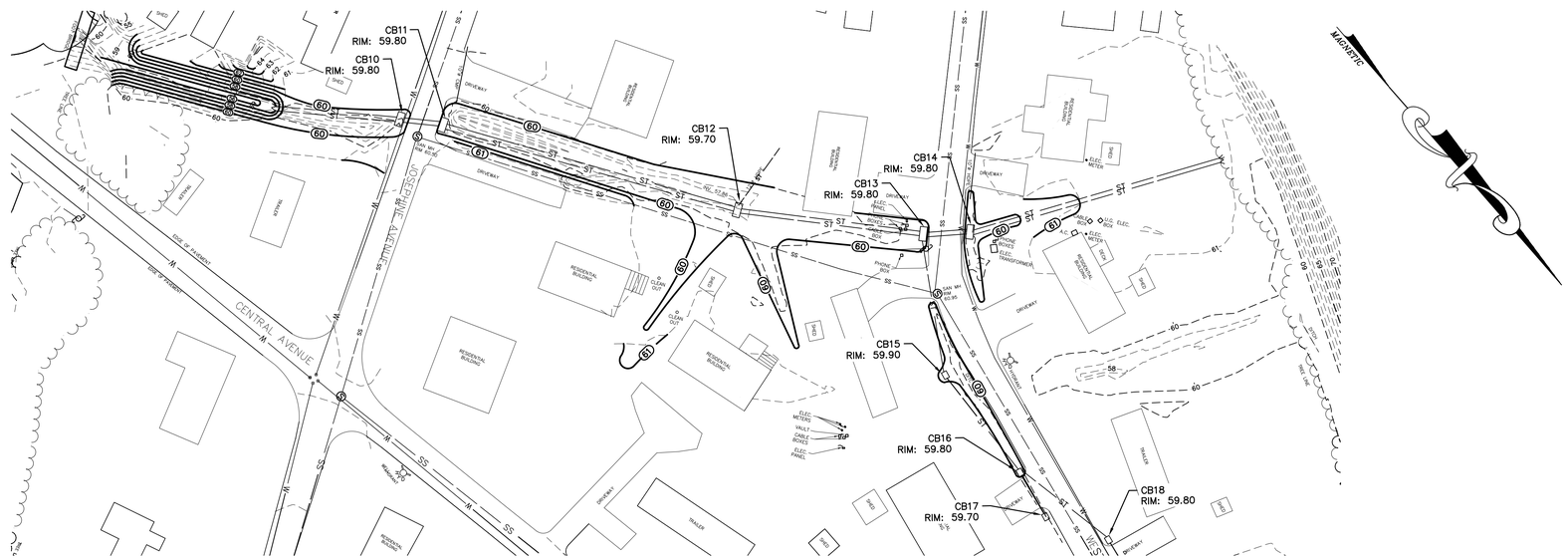
	DWG RJS	CHK JEM	



GRADING PLAN MOUNTAIN SWALE

SCALE: 1" = 40'



GRADING PLAN WESTERN DRAINAGE SYSTEM

SCALE: 1" = 40'

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR

NOTE:
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GRAPHIC SCALE IN FEET

40 0 40

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIE M. LARIOS 058747 STATE OF NEW YORK

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GRADING PLAN
WEST AND MOUNTAIN SWALE
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
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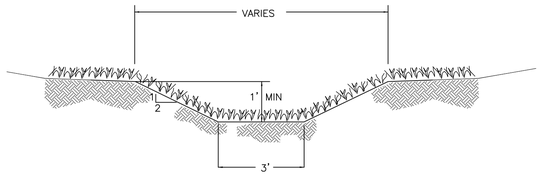
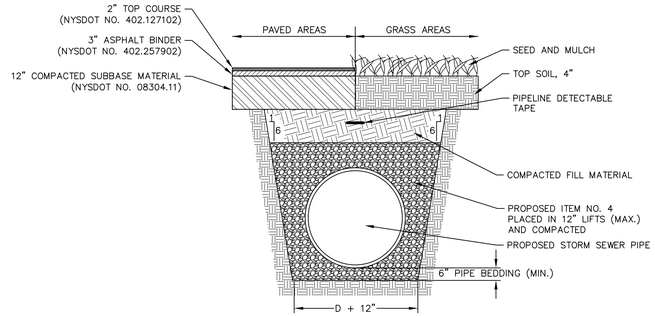
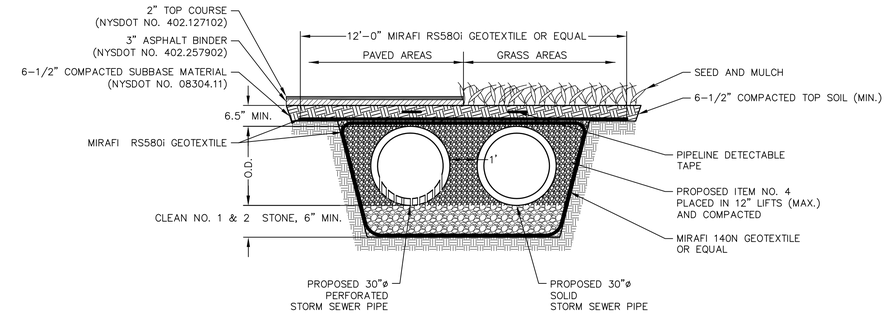


VEGETATION REQUIREMENTS FOR OPEN CHANNELS
SEED MIXTURE SHALL BE TALL FESCUE OR SMOOTH BROMEGRASS (0.45 LBS/1000 SF), KENTUCKY BLUEGRASS (0.6 LBS/1000 SF) OR PERENNIAL RYEGRASS (0.2 LBS/1000 SF). MULCH SEEDED AREAS. FERTILIZE, LIME AND MOW AS NEEDED TO MAINTAIN DENSE PROTECTIVE COVER.

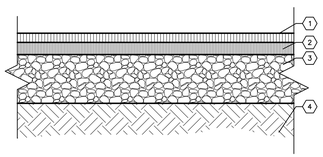
TYPICAL MOUNTAINSIDE SWALE SECTION
NOT TO SCALE



TYPICAL STORM SEWER TRENCH DETAIL
NOT TO SCALE



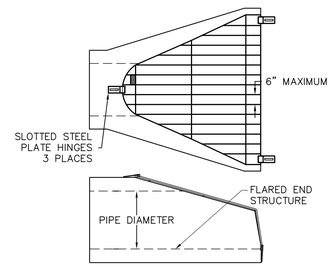
STORM SEWER TRENCH DETAIL
WESTERN DRAINAGE SYSTEM
NOT TO SCALE



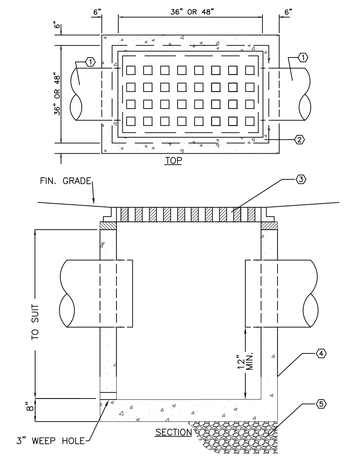
KEYED NOTES

1. 2" TYPE 6F2 ASPHALT WEARING SURFACE OVER TACK COAT. (NYSDOT #403.178202
2. 3" TYPE 3 BINDER OVER PRIME COAT. (NYSDOT #403.138902 M)
3. 12" (MIN.) COMPACTED ITEM #4 BASE MATERIAL. (NYSDOT #304.11 M)
4. WELL-DRAINED SUB-GRADE (COMPACT SUB-GRADE TO 95% MODIFIED PROCTOR),

TYPICAL PAVEMENT SECTION
NOT TO SCALE



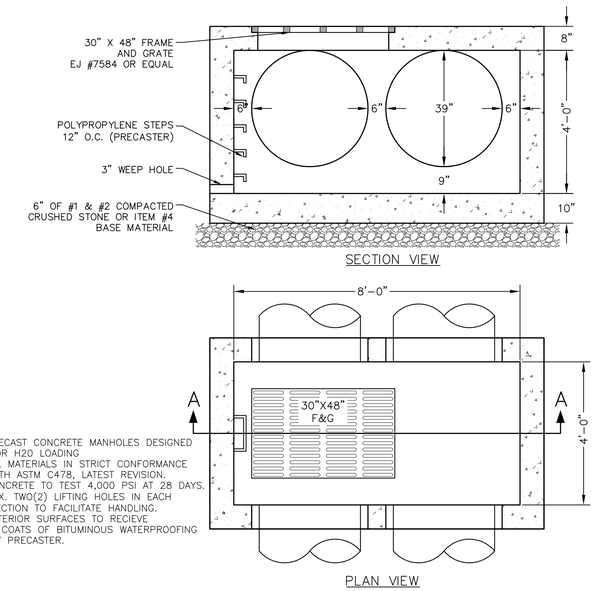
TYPICAL TRASH GUARD
FLARED END
NOT TO SCALE



KEYED NOTES

1. SEE SITE UTILITY PLAN FOR PIPE SIZES AND INVERTS.
2. PRECAST CONCRETE CATCH BASIN, 4,000 PSI CONCRETE, DESIGN FOR AASHTO H20 LOADING
3. HEAVY DUTY FRAME AND GRATE (AASHTO H20 LOADING),
   3'X3' CB – 24"X24" F&G. EJ#5423 OR EQUAL
   4'X4' CB – 30"X48" F&G. EJ#7584 OR EQUAL
   4'X5' CB – 30"X48" F&G. EJ#7584 OR EQUAL
4. EXTERIOR SURFACES TO RECEIVE 2 COATS OF BITUMINOUS WATERPROOFING BY PRECASTER
5. 6" OF #1 & #2 COMPACTED CRUSHED STONE OR ITEM #4 BASE MATERIAL

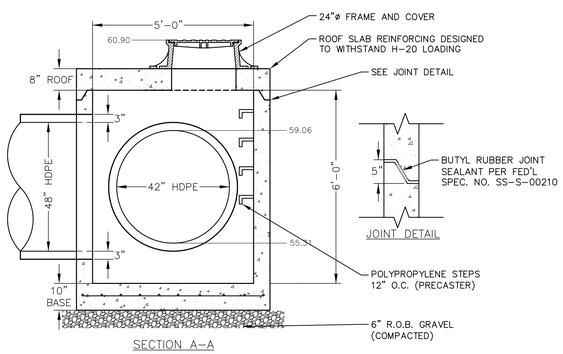
TYPICAL CATCH BASIN DETAIL
NOT TO SCALE



NOTES

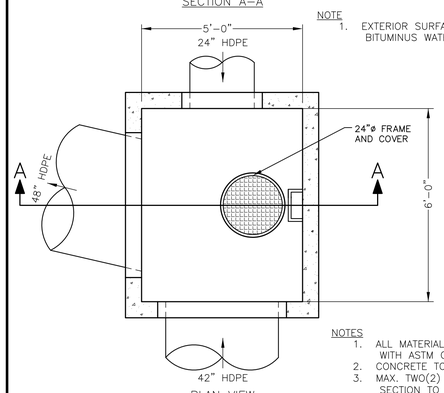
1. PRECAST CONCRETE MANHOLES DESIGNED FOR H20 LOADING
2. ALL MATERIALS IN STRICT CONFORMANCE WITH ASTM C478, LATEST REVISION.
3. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
4. MAX. TWO(2) LIFTING HOLES IN EACH SECTION TO FACILITATE HANDLING.
5. EXTERIOR SURFACES TO RECIEVE 2 COATS OF BITUMINOUS WATERPROOFING BY PRECASTER.

CATCH BASIN CB10–CB14 DETAIL
NOT TO SCALE



NOTE

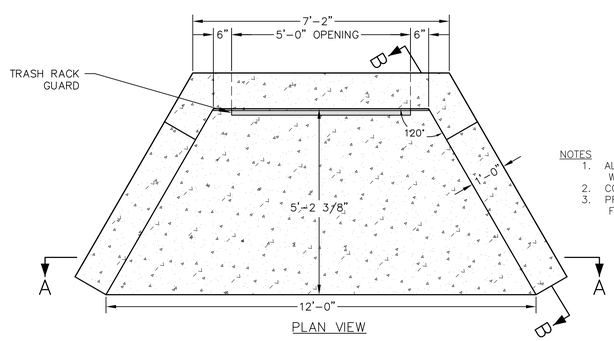
1. EXTERIOR SURFACES TO RECEIVE 2 COATS OF BITUMINUS WATERPROOFING BY PRECASTER.



NOTES

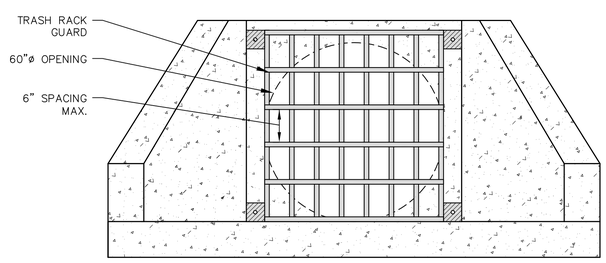
1. ALL MATERIALS IN STRICT CONFORMANCE WITH ASTM C478, LATEST REVISION.
2. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
3. MAX. TWO(2) LIFTING HOLES IN EACH SECTION TO FACILITATE HANDLING.

STORM SEWER ST1 MANHOLE
NOT TO SCALE

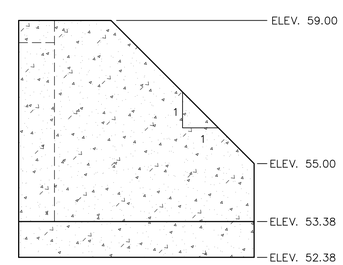


NOTES

1. ALL MATERIALS IN STRICT CONFORMANCE WITH ASTM C478, LATEST REVISION.
2. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
3. PROVIDE LIFTING HOLES AS APPROPRIATE TO FACILITATE HANDLING AND PLACEMENT



SECTION A–A



SECTION B–B

PRECAST 48"ø PIPE HEADWALL, WING WALLS, APRON AND TRASH RACK
NOT TO SCALE

LICENSED LAND SURVEYOR — CHRISTOPHER J. HILL — 49679 — STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER — DENNIS M. LARIOS — 058747 — STATE OF NEW YORK

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DETAILS
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE — ULSTER COUNTY — NEW YORK

DATE	REVISION RECORD

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ENGINEERS & LAND SURVEYORS
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Phone: 845-338-7622 — Fax: 845-338-7660

SCALE	DATE		SHEET NO.
N.T.S.	FEB. 2017		13 OF 16
	DWG RJS	CHK JEM	

EROSION & SEDIMENT CONTROL NOTES:

ALL CONSTRUCTION ACTIVITIES INVOLVING THE REMOVAL OR DEPOSITION OF SOILS ARE TO BE PROVIDED WITH APPROPRIATE PROTECTIVE MEASURES TO MINIMIZE EROSION OF, AND CONTAIN SEDIMENT WITHIN, THE AREA UNDER DEVELOPMENT. THOSE METHODS DEEMED MOST EFFECTIVE ARE DESCRIBED BELOW.

1. FOLLOW THE CONSTRUCTION SCHEDULE OUTLINED ON THIS SHEET.
2. CLEAR ONLY WHAT IS REQUIRED FOR THE IMMEDIATE CONSTRUCTION ACTIVITY. CLEARING AND GRADING SHOULD BE DONE AS CONSTRUCTION PROGRESSES. ONLY THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME DURING CONSTRUCTION.
3. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE.
4. PRIOR TO THE START OF CONSTRUCTION, TEMPORARY SILT FENCING AND/OR OTHER APPROVED DEVICES SHALL BE INSTALLED WHERE DEEMED NECESSARY TO PREVENT SOIL MIGRATION INTO WATER COURSES, WETLANDS, STORM DRAINAGE SYSTEMS, AND OFF SITE. SEE SILTATION CONTROL NOTES FOR INSTALLATION AND MAINTENANCE OF SILT FENCING.
5. WHENEVER POSSIBLE, SITE CONSTRUCTION ACTIVITIES SHALL START AT THE NEAREST POINT UPSLOPE OF THE EROSION CONTROL DEVICE, AND PROCEED TO ACTIVITIES FURTHER UPSLOPE.
6. SILT FENCING/TRAPS SHALL BE CLEANED OUT WHEN ACCUMULATED SEDIMENT HAS REDUCED THE CAPACITY OF THE TRAP BY 50%. SEDIMENT REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF IN A MANNER WHICH PREVENTS IT FROM ENTERING THE TRAP AGAIN.
7. WHEN LAND IS EXPOSED DURING DEVELOPMENT, THE PERIOD OF EXPOSURE SHALL BE KEPT TO A MINIMUM. IF PERMANENT VEGETATION, PAVEMENT, AND/OR STRUCTURES ARE NOT COMPLETED WITHIN 14 DAYS, STRAW MULCH (OR OTHER APPROVED MATERIAL) SHALL BE SPREAD TO TEMPORARILY COVER EXPOSED SOILS.
8. NO PERMITTED CONSTRUCTION ACTIVITIES SHALL TAKE PLACE WITHIN ANY WATERCOURSES OR WETLANDS UNTIL APPROPRIATE MEASURES ARE TAKEN TO PROTECT AND/OR TEMPORARILY DIVERT FLOWING WATER PAST THE WORK AREA AND DOWNSTREAM SEDIMENT CONTROLS ARE IN PLACE. IN GENERAL, THESE SEDIMENT CONTROLS SHALL NOT BE REMOVED UNTIL UPSTREAM ACTIVITY HAS BEEN SATISFACTORILY COMPLETED AND THE STREAM FLOWS CLEAR.
9. ALL TOPSOIL WHICH HAS BEEN STRIPPED AND STOCKPILED SHALL BE PLACED AT LEAST 50 FEET FROM ANY WETLAND OR WATERCOURSE. THE TOE OF THE STOCKPILE SHALL BE PROTECTED IN A MANNER WHICH PREVENTS SOIL FROM MIGRATING.
10. RING ANY TEMPORARY STOCKPILES WITH SILT FENCE TO PREVENT EROSION OF THE PILE.
11. ALL TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL REMAIN IN PLACE AND BE MAINTAINED REGULARLY IN PROPER FUNCTIONING CONDITION UNTIL ALL AREAS EXPOSED DURING CONSTRUCTION HAVE BEEN SUITABLY STABILIZED WITH FINAL VEGETATIVE COVER, PERMANENT STRUCTURES, OR PAVEMENT.
12. THE CONTRACTOR SHALL COMPLY WITH THE PROVISIONS OF ALL ENVIROMENTAL/SPDES PERMITS ISSUED FOR THIS PROJECT AND LOCAL, STATE AND FEDERAL REGULATIONS.
13. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PREVENT CONTAMINATION OF THE EXISTING DRAINAGE SWALES BY SILT, SEDIMENT, FUELS, SOLVENTS, LIQUIDS, CONCRETE LEACHATE, OR ANY OTHER POLLUTANT ASSOCIATED WITH THE CONSTRUCTION OF THIS PROJECT.

CONSTRUCTION SCHEDULE:

1. FLAG THE LIMIT OF DISTURBANCE TO DELINEATE THE WORK AREAS.
2. HOLD A PRE–CONSTRUCTION MEETING PRIOR TO STARTING CONSTRUCTION.
3. INSTALL TEMPORARY STABILIZED CONSTRUCTION ENTRANCE.
4. INSTALL TEMPORARY SILT FENCING. SILT FENCE LOCATIONS AS DEPICTED ON PLANS ARE ILLUSTRATIVE. CONTRACTOR SHALL EXERCISE DILIGENCE WHEN INSTALLING SILT FENCE TO CAPTURE ALL SEDIMENT LADEN RUNOFF.
5. CLEAR AND ROUGH GRADE SITE IN THE AREAS OF IMMEDIATE CONSTRUCTION ACTIVITY ONLY.
6. STOCKPILE TOPSOIL. CONSTRUCT CHANNELS. BARE AREAS SHALL BE MULCHED SHOULD GRADING BE DISCONTINUED FOR MORE THAN 14 DAYS.
7. COMPLETE FINAL GRADING FOR SLOPE STABILIZATION.
8. COMPLETE FINAL GRADING. TOPSOIL CRITICAL AREAS AND PERMANENTLY VEGETATE, LANDSCAPE AND MULCH.
9. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AT LEAST ONCE EVERY (7) SEVEN CALENDER DAYS. NEEDED REPAIRS WILL BE MADE IMMEDIATELY. IF GREATER THAN 5 ACRES OF LAND IS DISTURBED AT ONE TIME, THE QUALIFIED INSPECTOR SHALL CONDUCT 2 SITE INSPECTIONS EVERY (7) SEVEN CALENDER DAYS.
10. AFTER THE SITE IS STABILIZED, REMOVE ALL TEMPORARY MEASURES AND INSTALL PERMANENT VEGETATION ON THE DISTURBED AREAS.

INSPECTIONS AND REPORTING:

1. FOLLOW ALL REQUIREMENTS OUTLINED IN THE SWPPP AND NYSDEC SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY, PERMIT NO. GP–0–15–002.

SILTATION CONTROL NOTES:

1. ALL SILTATION AND EROSION CONTROL STRUCTURES SHALL BE INSTALLED PRIOR TO ANY EXCAVATION AND AS ACCEPTABLE TO THE ENGINEER. SILT FENCE SHALL BE MAINTAINED FOR THE DURATION OF SAID WORK AND SHALL NOT BE REMOVED UNTIL APPROVED BY THE ENGINEER.

2. SILT FENCE SHALL CONSIST OF 24" HIGH GEOTEXTILE FABRIC (FILTER CLOTH) INSTALLED PARALLEL WITH THE TOE OF SLOPES AS INDICATED ON THE PLAN.

3. THE FABRIC SHALL BE FASTENED SECURELY AT THE TOP AND MID SECTION TO MIN. 3' LONG FENCE POSTS PLACED A MAX. OF 10' ON CENTER. THE BOTTOM 6" OF FABRIC SHALL BE LAID INTO THE TRENCH TO PREVENT UNDERMINING.

4. ADJOINING SECTIONS OF FILTER CLOTH SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.

5. SILT FENCING SHALL BE CLEANED OUT WHEN NEED, WHEN ACCUMULATED SEDIMENT HAS REDUCED THE CAPACITY BY 50% OR BULGES DEVELOP IN THE FABRIC. SEDIMENT REMOVED BE PROPERLY DISPOSED OF IN A MANNER WHICH PREVENTS IT FROM ENTERING THE AREA AGAIN.

6. SILT FENCE SHALL BE INSTALLED IN ALL AREAS THAT WILL HAVE AN EXCAVATION OPEN FOR MORE THAN 24 HOURS.

7. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF–PRODUCING RAINFALL AND NO LESS THAN ONCE EVERY WEEK. ANY NEED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED AND INSTALLED FOR THEIR APPROPRIATE PHASE OF THE PROJECT.

LANDSCAPING & VEGETATION ESTABLISHMENT NOTES:

1. ALL TEMPORARY SEEDING SHALL BE RYEGRASS (ANNUAL OR PERENNIAL) AT AN APPLICATION RATE OF 0.7 POUNDS PER 1,000 SQUARE FEET. MULCH IMMEDIATELY AFTER SEEDING WITH STRAW AT A RATE OF 2 BALES (90 lbs) PER 1,000 SQUARE FEET.
2. ALL OTHER SITE AREAS SPECIFIED FOR PERMANENT GRASS VEGETATION SHALL BE SEEDED WITH A MIXTURE OF PERENNIAL RYEGRASS SEED OF THE PENNFINE/JUNN VARIETY AT A RATE 0.10 POUNDS PER 1,000 SQUARE FOOT. EROSION AND SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE INSPECTED UNTIL FULL VEGETATION IS ESTABLISHED.
3. STRAW MULCH SHALL BE USED FOR ALL AREAS WHERE VEGETATION IS TO BE ESTABLISHED. MULCH SHALL BE INSTALLED IMMEDIATELY AFTER SEEDING AT A RATE OF 90–100 POUNDS PER 1,000 SQUARE FEET.

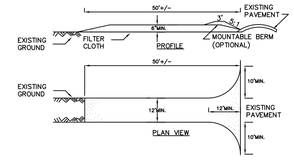
MAINTENANCE SCHEDULE:

MAINTENANCE DURING CONSTRUCTION

- ALL EROSION AND SEDIMENT CONTROL PRACTICES ALONG WITH TREE PROTECTION PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION EVERY SEVEN DAYS. ANY NEEDED REPAIRS WILL BE DONE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED AND INSTALLED FOR THEIR APPROPRIATE PHASE OF THE PROJECT.
- THE STABILIZED CONSTRUCTION ENTRANCES SHALL BE CLEANED OR REPLACED WHEN TRACKING OF SEDIMENT BECOMES EVIDENT.

LONG TERM MAINTENANCE

- WEED AND WATER TO ESTABLISH PERMANENT VEGETATION.
- REPLACEMENT/REHABILITATION SHALL BE MADE TO ANY ERODED AREAS.
- PROVIDE REPLACEMENT OF PLANTINGS, MULCH, WEEDING AND THINNING TO MAINTAIN THE DESIRED APPEARANCE.
- THE STORM WATER MANAGEMENT AREAS SHALL BE KEPT CLEAN OF TRASH AND DEBRIS.
- INSPECT AT LEAST TWICE DURING THE FIRST SIX MONTHS. SUBSEQUENTLY, INSPECTIONS SHOULD BE CONDUCTED ANNUALLY AND AFTER STORM EVENTS GREATER THAN 2".

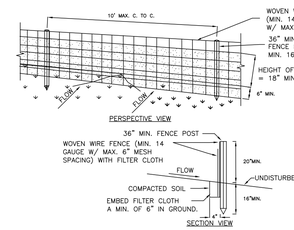


CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY–FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN EVENT.
10. STABILIZED CONSTRUCTION ENTRANCES SHALL BE CONSTRUCTED AND MAINTAINED AT SITE ENTRANCES DURING PHASE I CONSTRUCTION AND AT DRIVEWAY ENTRANCES DURING PHASE II CONSTRUCTION.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

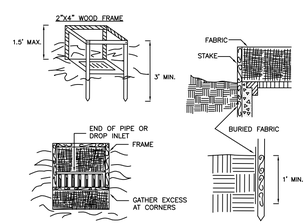


CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER–LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
6. SILT FENCE LOCATIONS AS DEPICTED ON PLANS ARE ILLUSTRATIVE. CONTRACTOR SHALL EXERCISE DILIGENCE WHEN INSTALLING SILT FENCE TO CAPTURE ALL SEDIMENT LADEN RUNOFF.

SILT FENCE DETAIL

NOT TO SCALE



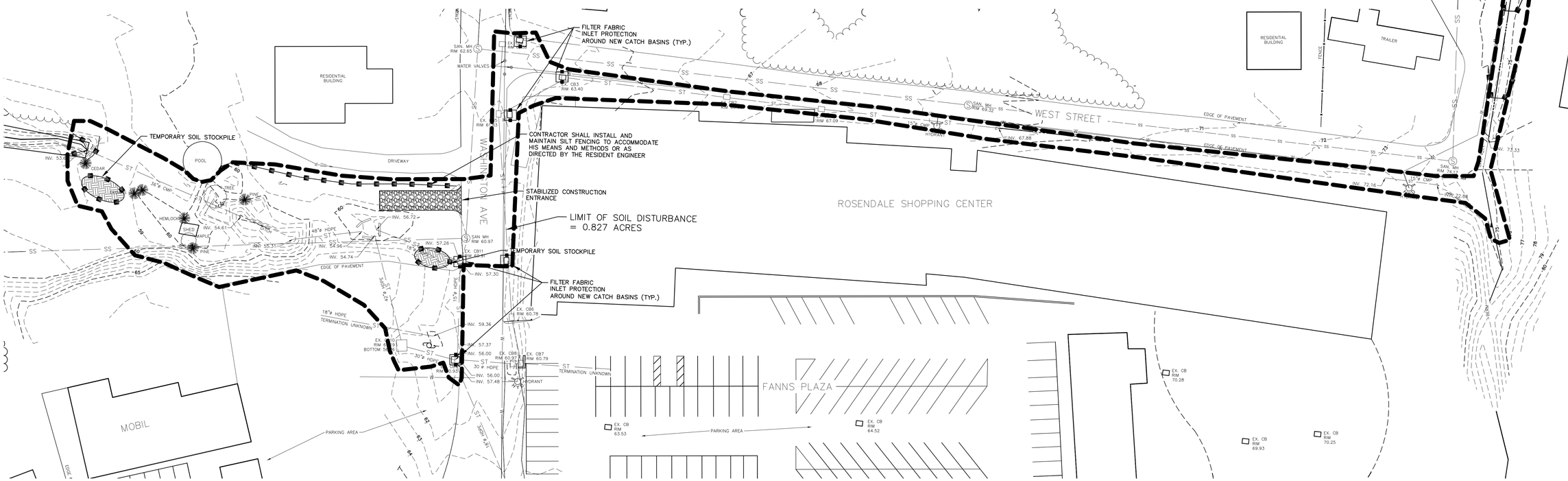
CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40–85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUN DRAINAGE AREA 1 ACRE

FILTER FABRIC INLET PROTECTION

NOT TO SCALE



EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 30'

EROSION AND SEDIMENT CONTROL PLAN – EAST
CONTRACT NO. TS–171

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	SILT FENCE AND CB INLET PROTECTION

NOTE:
The location of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the contractor's failure to exactly locate and preserve any and all underground utilities.

GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. FELL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058741 STATE OF NEW YORK

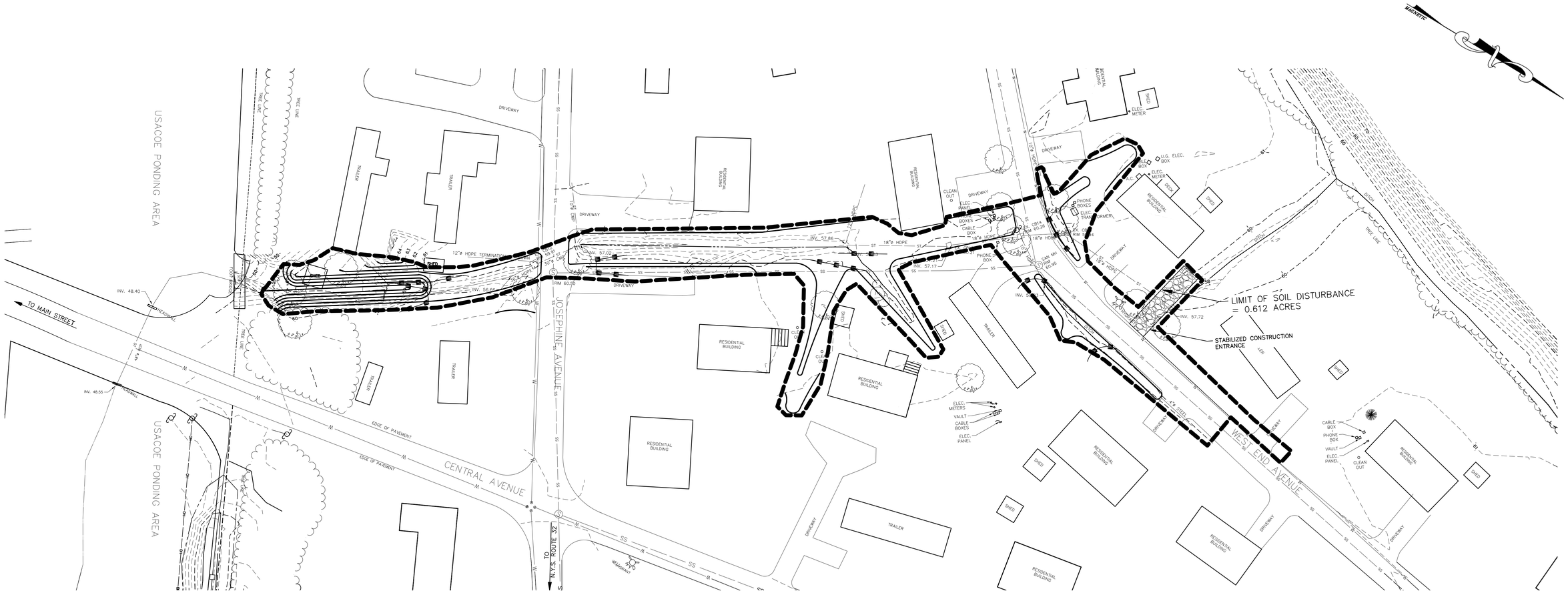
Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845–338–7622 Fax: 845–338–7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		14 OF 16
	DWG RJS	CHK JEM	



EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 30'

NOTE:

1. SEE SHEET 14 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
2. CONTRACTOR SHALL INSTALL AND MAINTAIN SILT FENCING TO ACCOMMODATE HIS MEANS AND METHODS OR AS DIRECTED BY THE OWNERS REPRESENTATIVE.
3. SEE SHEET 12 FOR GRADING PLAN.

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EX. CB1 EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- SILT FENCE AND CB INLET PROTECTION

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GRAPHIC SCALE IN FEET

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LICENSED PROFESSIONAL ENGINEER JENNIFER M. LARIOS 058741 STATE OF NEW YORK

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EROSION AND SEDIMENT
CONTROL PLAN – EAST
CONTRACT NO. TS–171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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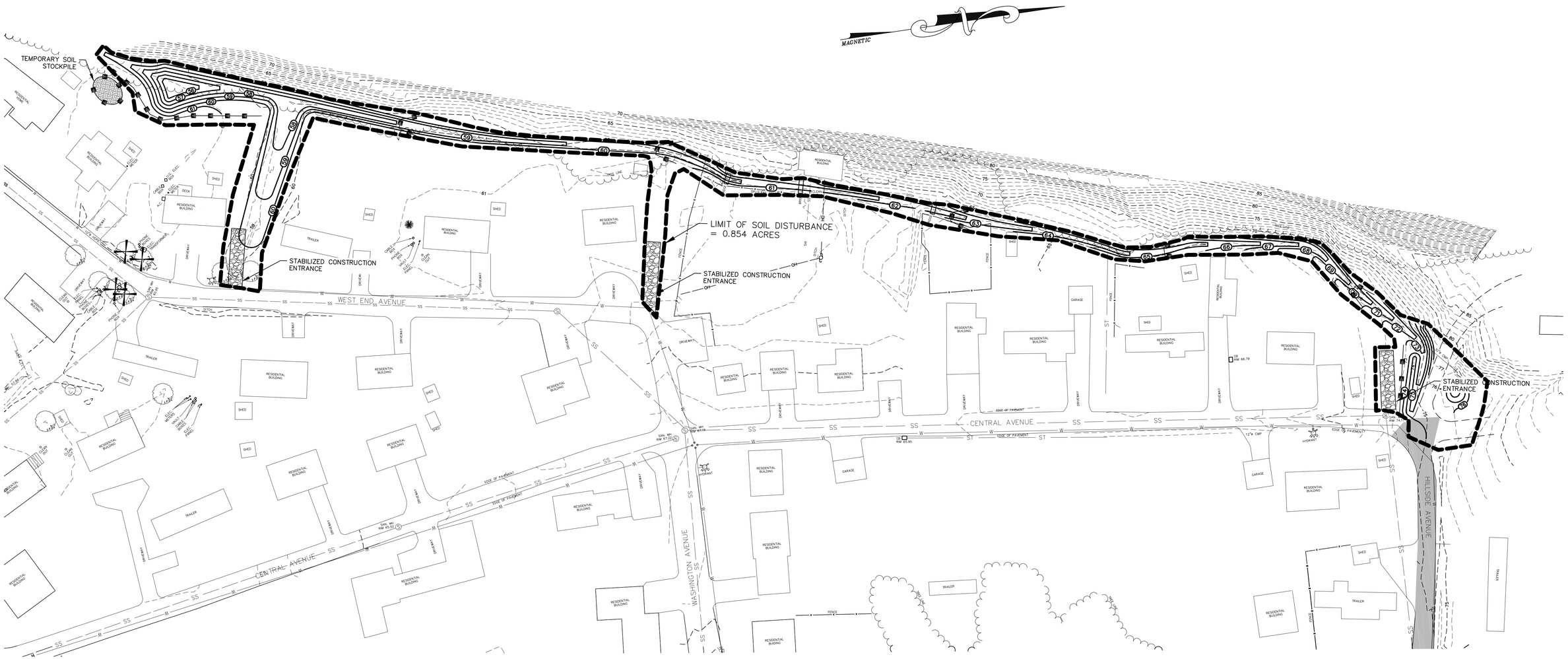

EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 40'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	SILT FENCE AND CB INLET PROTECTION

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NOTE:

1. SEE SHEET 14 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
2. CONTRACTOR SHALL INSTALL AND MAINTAIN SILT FENCING TO ACCOMMODATE HIS MEANS AND METHODS OR AS DIRECTED BY THE OWNERS REPRESENTATIVE.
3. SEE SHEET 12 FOR GRADING PLANS.

GRAPHIC SCALE IN FEET

40 0 40

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL #9679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIS M. LARIOS 058747 STATE OF NEW YORK

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EROSION AND SEDIMENT CONTROL PLAN – MOUNTAIN SWALE
CONTRACT NO. TS–171

WASHINGTON PARK STORMWATER MITIGATION
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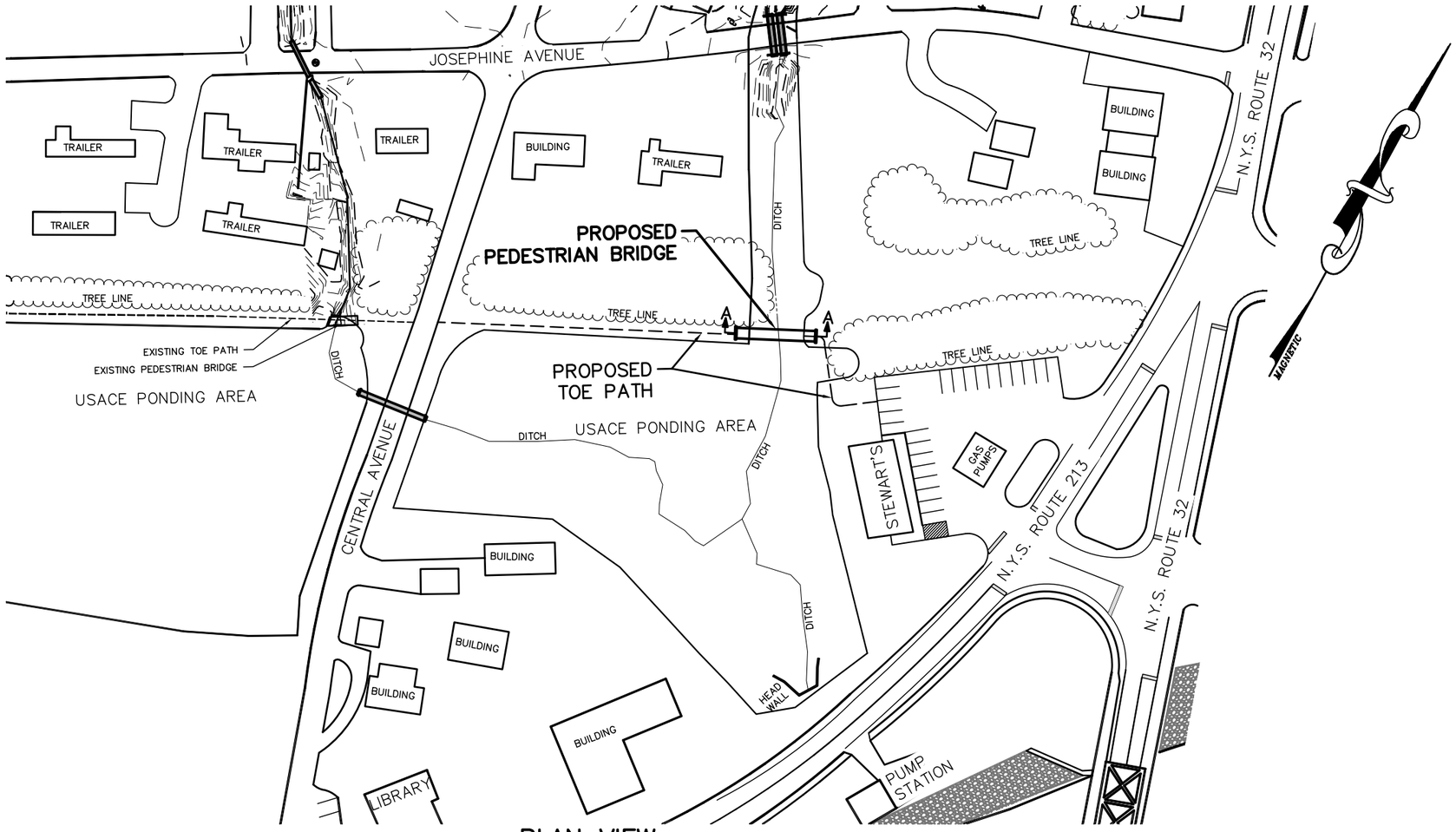
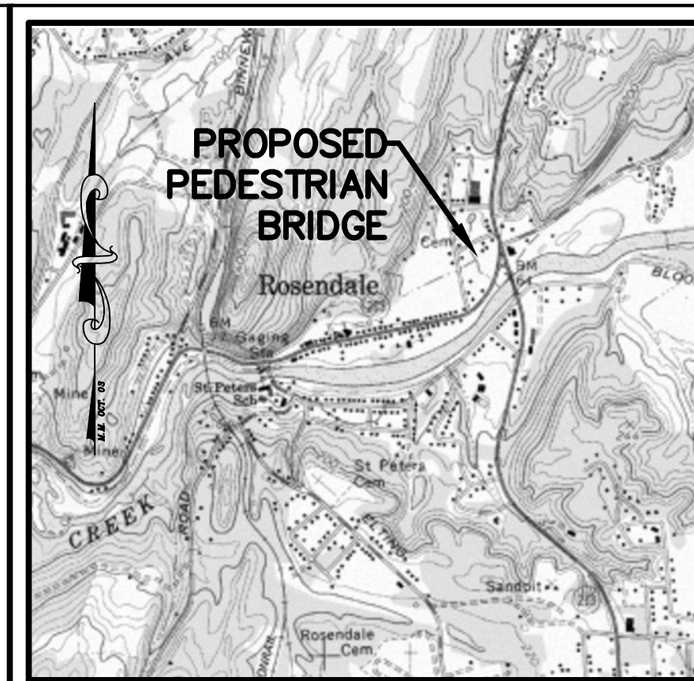
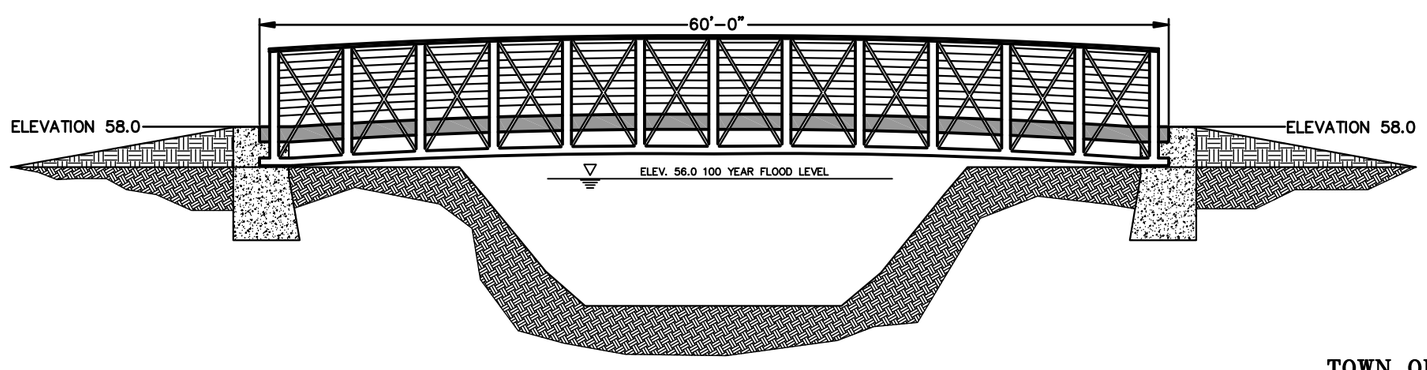


PLAN VIEW
SCALE: 1" = 100'



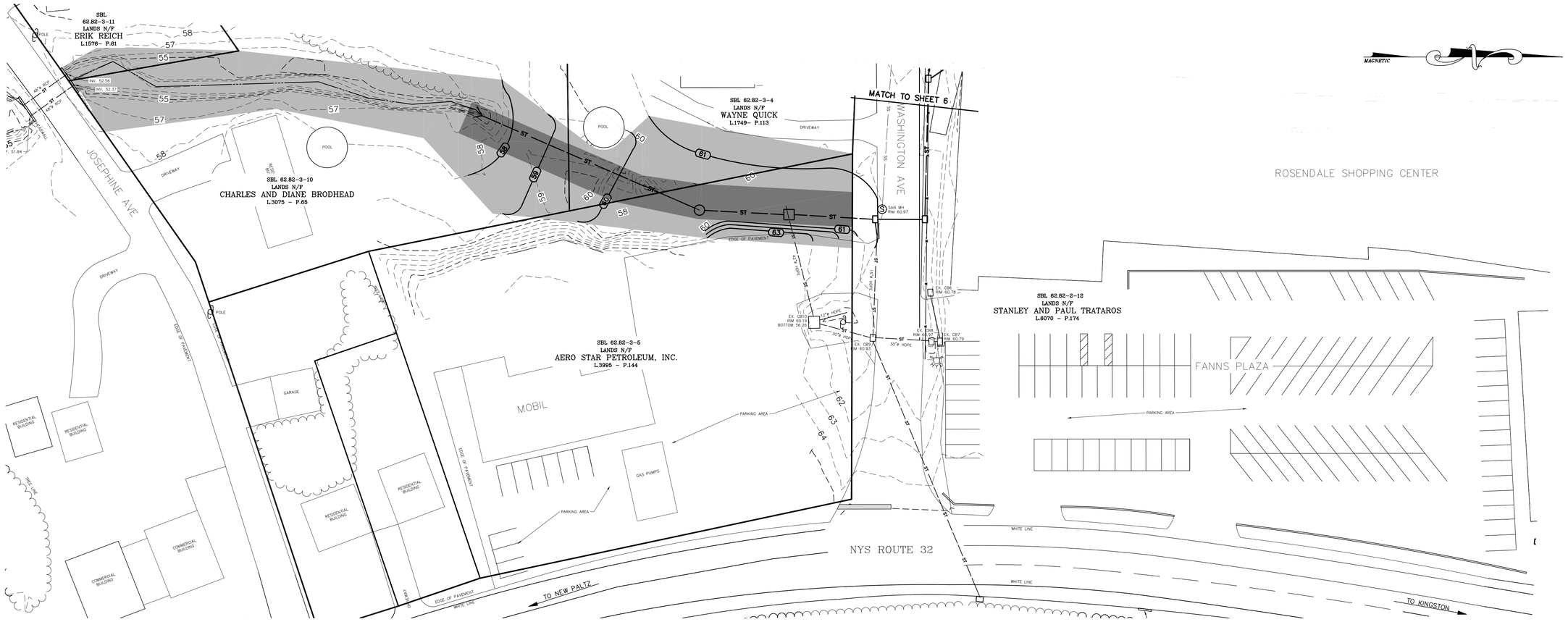
LOCATION MAP
ROSENDALE QUADRANGLE
7.5' MINUTE USGS TOPOGRAPHIC MAP
SCALE: 1" = 2000'



SECTION VIEW A-A
NOT TO SCALE

CHANGE ORDER NO. 1
PEDESTRIAN BRIDGE
WASHINGTON PARK
STORMWATER MITIGATION

TOWN OF ROSENDALE, ULSTER COUNTY, NEW YORK



SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
AERO STAR PETROLEUM INC 62.82-3-5	20' WIDE 0.05 ACRES	WIDTH VARIES 0.07 ACRES
WAYNE QUICK 62.82-3-4	20' WIDE 0.02 ACRES	WIDTH VARIES 0.08 ACRES
CHARLES AND DIANE BRODHEAD 62.82-3-10	20' WIDE 0.03 ACRES	WIDTH VARIES 0.25 ACRES
ERIK REICH 62.82-3-11	NONE	WIDTH VARIES 0.02 ACRES

LEGEND

- 50 — CONTOURS (MINOR)
- 52 — CONTOURS (MAJOR)
- ℄ — PROPERTY LINE
- ST — EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- x — FENCE
- UTILITY POLE
- EX. CB1 — EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- ST — PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- 62 — PROPOSED CONTOUR
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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DRAFT

REQUIRED EASEMENTS
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY

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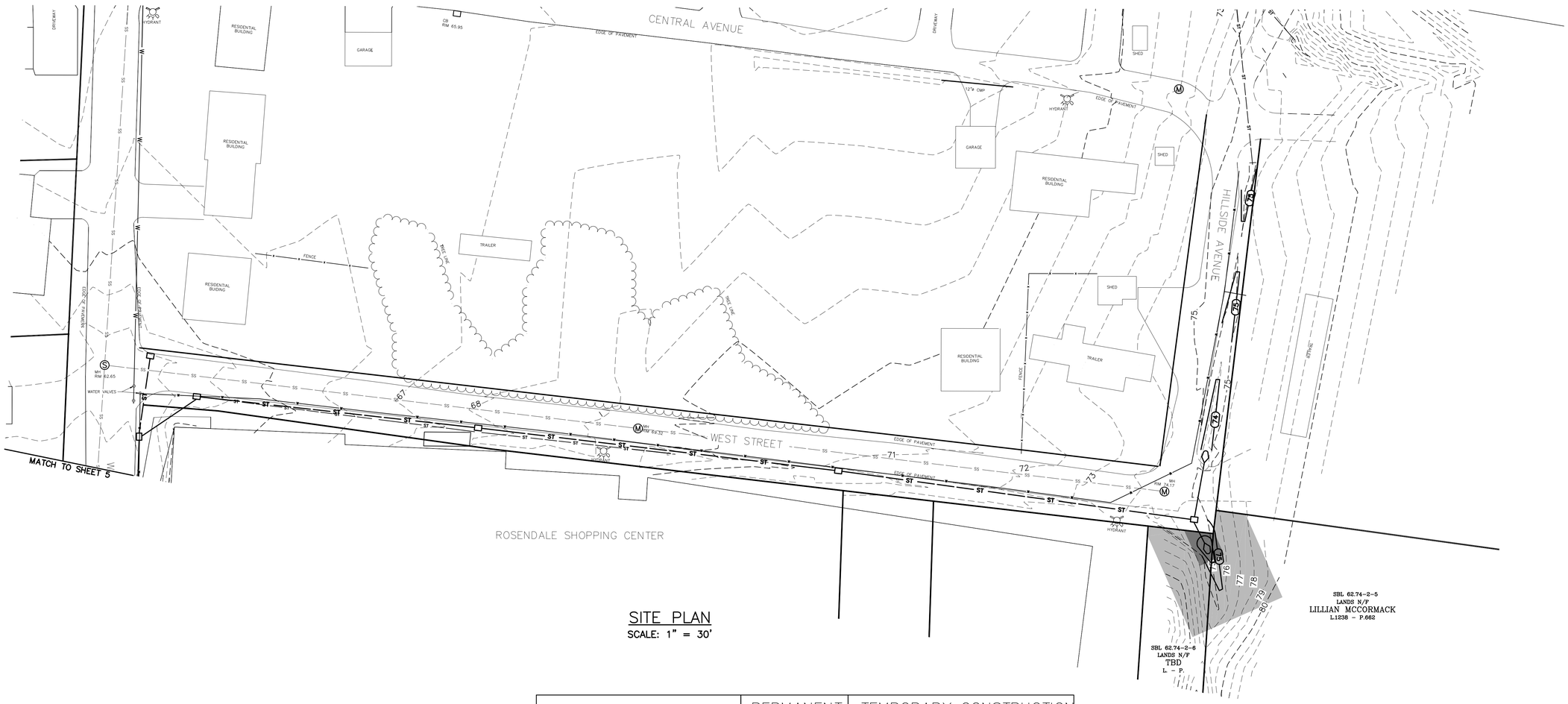
SCALE	DATE	SHEET NO.
1" = 30'	NOV. 2016	1 OF 4
	DWG RJS / CHK	

MAGNETIC



SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
LILLIAN MCCORMACK 62.74-2-5	20' WIDE 0.001 ACRES	WIDTH VARIES 0.04 ACRES
TBD 62.74-2-6	20' WIDE 0.004 ACRES	WIDTH VARIES 0.03 ACRES

DRAFT

REQUIRED EASEMENTS
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EX. CB1 EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR

GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER BRIAN M. LARIOS 058741 STATE OF NEW YORK

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	DWG RJS	CHK	

SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
LAMONT VANWEZEMAAL 62.82-1-4	20' WIDE 0.04 ACRES	WIDTH VARIES 0.19 ACRES
WASHINGTON EST. DEV. CORP. 62.82-1-12.100	20' WIDE 0.25 ACRES	WIDTH VARIES 0.38 ACRES
CHARLES AND DIANE BRODHEAD 62.82-1-12.100	NONE	WIDTH VARIES 0.02 ACRES
LAURA AND CAMERON HENDRIX 62.82-1-13	NONE	WIDTH VARIES 0.04 ACRES

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING STORM SEWER
- DITCH
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- FENCE
- UTILITY POLE
- EX. CB1 EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR
- PROPOSED MOUNTAIN SWALE
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

NOTE:
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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIG M. LARIOS 058741 STATE OF NEW YORK

Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

DRAFT

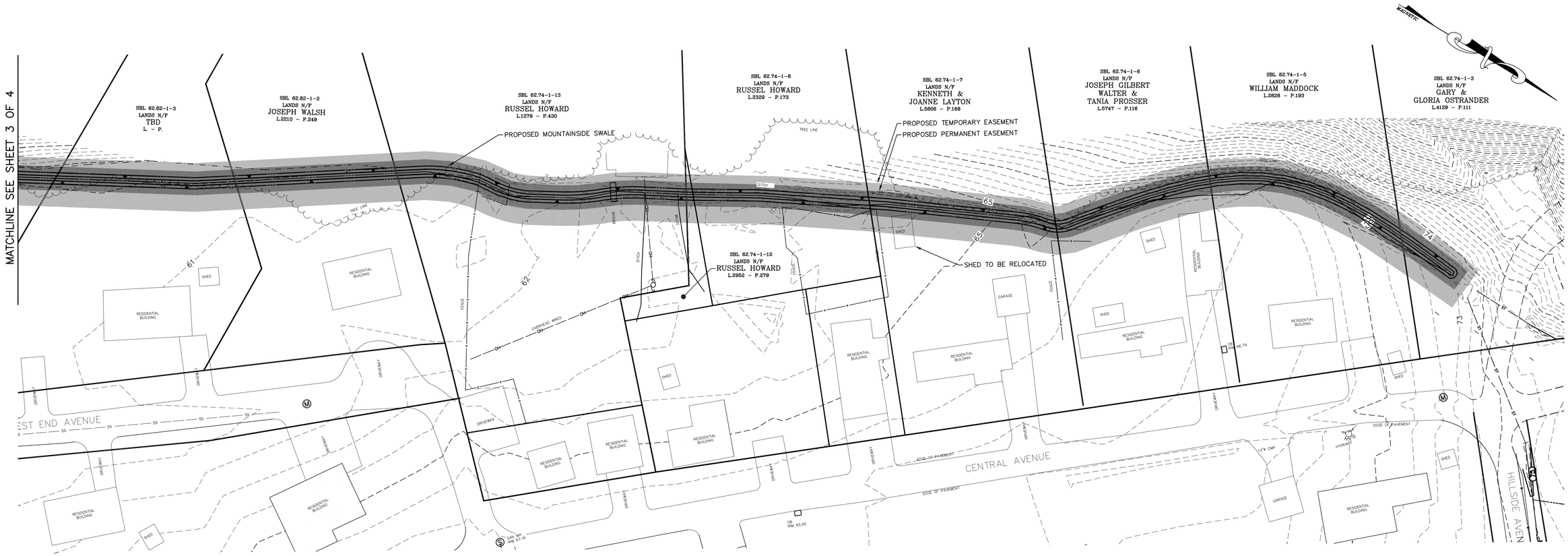
REQUIRED EASEMENTS
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

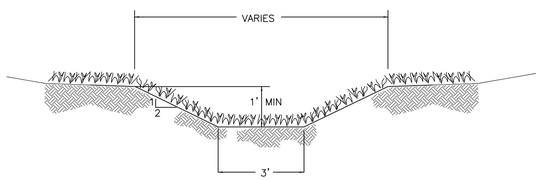
BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	NOV. 2016		3 OF 4
	DWG RJS	CHK	



SITE PLAN

SCALE: 1" = 30'



VEGETATION REQUIREMENTS FOR OPEN CHANNELS
SEED MIXTURE SHALL BE TALL FESCUE OR SMOOTH BROMEGRASS (0.45 LBS/1000 SF), KENTUCKY BLUEGRASS (0.6 LBS/1000 SF) OR PERENNIAL RYEGRASS (0.2 LBS/1000 SF). MULCH SEEDED AREAS. FERTILIZE, LIME AND MOW AS NEEDED TO MAINTAIN DENSE PROTECTIVE COVER.

TYPICAL MOUNTAINSIDE SWALE SECTION

NOT TO SCALE

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
TBD 62.82-1-3	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
JOSEPH WALSH 62.82-1-2	15' WIDE 0.03 ACRES	15' WIDE 0.03 ACRES
RUSSELL HOWARD 62.74-1-13	15' WIDE 0.06 ACRES	15' WIDE 0.06 ACRES
RUSSELL HOWARD 62.74-1-12	15' WIDE 0.001 ACRES	15' WIDE 0.002 ACRES
RUSSELL HOWARD 62.74-1-8	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
KENNETH & JOANNE LAYTON 62.74-1-7	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
JOSEPH GILBERT 62.74-1-6	15' WIDE 0.03 ACRES	15' WIDE 0.03 ACRES
WILLIAM MADDOCK 62.74-1-5	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
GARY & GLORIA OSTRANDER 62.74-1-3	15' WIDE 0.02 ACRES	15' WIDE 0.02 ACRES

DRAFT

REQUIRED EASEMENTS
MOUNTAINSIDE SWALE
CONTRACT NO. TR-171

LEGEND

- 50 — CONTOURS (MINOR)
- 52 — CONTOURS (MAJOR)
- R — PROPERTY LINE
- ST — EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- x — FENCE
- UTILITY POLE
- EX. CB1 — EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- ST — PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- 65 — PROPOSED CONTOUR
- PROPOSED MOUNTAIN SWALE
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

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	DWG RJS	CHK	

NEW YORK STATE OF OPPORTUNITY.
Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ROSE HARVEY
Commissioner

March 16, 2017

Ms. Dina Peoples
Geologist II
Tectonic Engineering
70 Pleasant Hill Road
Mountainville, NY 10953

Re: HUD
Washington Park Stormwater Mitigation Project
Town of Rosendale, Ulster County, NY
17PR01469

Dear Ms. Peoples:

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). We have reviewed the project in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

Based upon this review, the New York SHPO has determined that no historic properties will be affected by this undertaking.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Michael F. Lynch, P.E., AIA

Director, Division for Historic Preservation

Governor's Office of
Storm Recovery

ANDREW M. CUOMO
Governor

LISA BOVA-HIATT
Executive Director

March 20, 2017

Chet Brooks, Chief
Delaware Tribe of Indians, Delaware Tribal Headquarters
5100 Tuxedo Blvd
Bartlesville, OK 74006

Re: Section 106 Compliance for the Washington Park Stormwater Mitigation Project, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, NY

Dear Chief Chet Brooks:

Pursuant to the Disaster Relief Appropriations Act, 2013 (Public Law 113-2) and the Housing and Community Development Act (42 U.S.C. § 5301 et seq.), the Governor's Office of Storm Recovery (GOSR), an office of New York State Homes and Community Renewal's Housing Trust Fund Corporation as a recipient of Community Development Block Grant – Disaster Recovery ("CDBG-DR") funds from the United States Department of Housing and Urban Development ("HUD"), is serving as the entity responsible for compliance with the HUD environmental review procedures set forth in 24 CFR Part 58. GOSR is acting on behalf of HUD in providing the enclosed project information and inviting this discussion with your Tribe to respond with any concerns or comments.

GOSR processes environmental reviews for projects funded with HUD CDBG-DR on a case-by-case basis. In accordance with Section 101(d)(6)(B) of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470a), and its implementing regulations, 36 Code of Federal Regulations (CFR) Part 800, this letter serves as notification of the proposed action. This consultation is being sent to the Delaware Nation, Delaware Tribe of Indians, Mohawk Nation, Saint Regis Mohawk Tribe, and the Stockbridge-Munsee Community Band of Mohicans.

Area of Potential Effect: The Washington Park Stormwater Mitigation Project ("Proposed Project") involves the installation of culvert pipes, drainage ditches, swales, catch basins, a storm sewer manhole, and a pedestrian bridge in the Town of Rosendale, Ulster County, New York. Washington Park, the residential area located northwest of the intersection of New York State (NYS) Route 32 and NYS Route 213, has been subjected to historic, chronic flooding during large rain events. The proposed drainage improvements will effectively convey water during 50-year storm events and alleviate chronic flooding problems. The project location is identified on the enclosed street map and USGS topographic map.

Project Description: CDBG-DR funding is proposed for the improvement of two defined drainageways that cross through the Washington Park area. Runoff from a hill/mountain to the

northeast and runoff from the hillside adjacent to Fann's Plaza are conveyed by storm sewers to an extant United States Army Corps of Engineers (USACE) ponding area located on the south side of the Site (hereafter referred to as the Eastern Drainage System). Runoff from a hill/mountain to the west is conveyed via a swale at the base of the mountain to a storm sewer system that crosses under West End Avenue and Josephine Avenue to an existing USACE ponding area on the west side of Central Avenue (hereafter referred to as the Western Drainage System).

Improvement of the Eastern Drainage System will involve the construction of the following: a drainage swale along Hillside Avenue; a new storm sewer along West Street (from Hillside Avenue to Washington Avenue); a new storm sewer on Washington Avenue (from West Street to where it crosses under Washington Avenue); and a new storm sewer from Washington Avenue to the USACE ponding area. An existing USACE ponding area will also be regraded to provide a uniform alignment and cross sectional area that is consistent with the original USACE Rondout Creek Flood Control design. Proposed Eastern Drainage System improvements will include the installation of 181 linear feet (LF) of 48" diameter HDPE culvert pipe, 46 LF of 36" diameter HDPE culvert pipe, 745 LF of 24" diameter HDPE culvert pipe, 46 LF of 18" diameter HDPE culvert pipe, nine catch basins, and one storm sewer manhole. There are a total of eight trees located east of NYS Route 32 and south of Washington Avenue to be removed for project construction. These trees are situated between residential and commercial properties.

Improvement of the Western Drainage System will involve the construction of a drainage swale along the mountainside from the intersection of Central Avenue and Hillside Avenue to SBL# 62.82-1-4 (37 West End Avenue) and a new storm sewer from SBL# 62.82-1-4 (37 West End Avenue) to the existing USACE ponding area on the south side of Josephine Avenue. The Western Drainage System will be designed with a filter fabric lined trench and one perforated 30" HDPE pipe to provide positive relief of any potential shallow groundwater levels. Shallow groundwater would drain by gravity through a one-foot thick stone layer under the pipe and the perforated pipe. Proposed Western Drainage System improvements will include the installation of 1,002 LF of 30" diameter HDPE culvert pipe (dual culvert 501 LF) and five catch basins. The proposed mountainside drainage swale crosses through nine private properties. During construction, four trees will be removed from West End Avenue and two trees will be removed on Josephine Avenue, where the proposed drainage system would intersect the roadway. These trees are located in the right-of-way adjacent to residential properties. Temporary construction easements and permanent drainage maintenance easements will have to be obtained. The project engineering design plans are included with this letter for your review.

With this letter, GOSR respectfully submits for your review the attached documentation for the proposed project described herein. GOSR initiated consultation with the New York State Historic Preservation Office and their concurrence indicating that no historic properties will be affected, dated March 16, 2017, is included with this letter for your records. If the Area of Potential Effect encompasses historic properties of religious or cultural significance to your Tribe, please respond within 30 days or sooner. Additionally, please indicate if there are other sources of information or other parties, Nations, Tribes, or members of the public you believe should be included in the consultation process. Please respond by email or in writing to the address listed below.

Lori A. Shirley
Director, Bureau of Environmental Review and Assessment, GOSR
New York State Homes & Community Renewal
38-40 State St. 408N, Hampton Plaza
Albany, New York 12207

If you have any questions or require additional information regarding this request, please feel free to contact me at (518) 474-0755 or via email at Lori.Shirley@nyshcr.org. Thank you for your time and consideration.

Sincerely,

Lori A. Shirley
Director, Bureau of Environmental Review and Assessment, GOSR

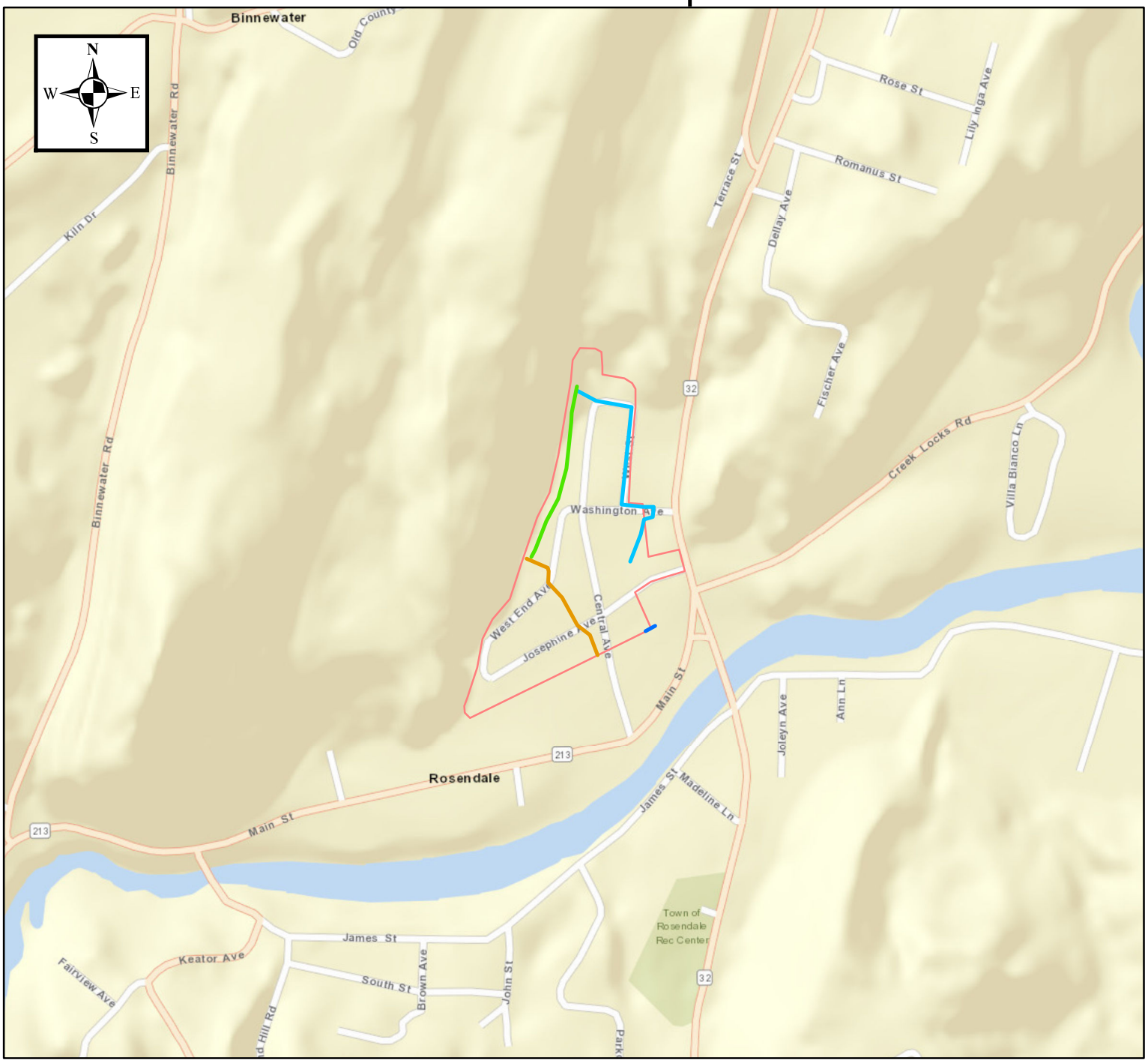
Enclosures:
Project Location Maps
Project Engineering Design Plans
NYSHPO No Affect Letter

Electronic letter sent to:
Susan Bachor
Delaware Tribe of Indians Historic Preservation Representative
P.O. Box 64
Pocono Lake, PA 73005

Attachment 1

Street Map,
Topographic Map,
& Aerial Photograph

Location Map



TECTONIC

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0 500 1,000 2,000 Feet

1:10,000

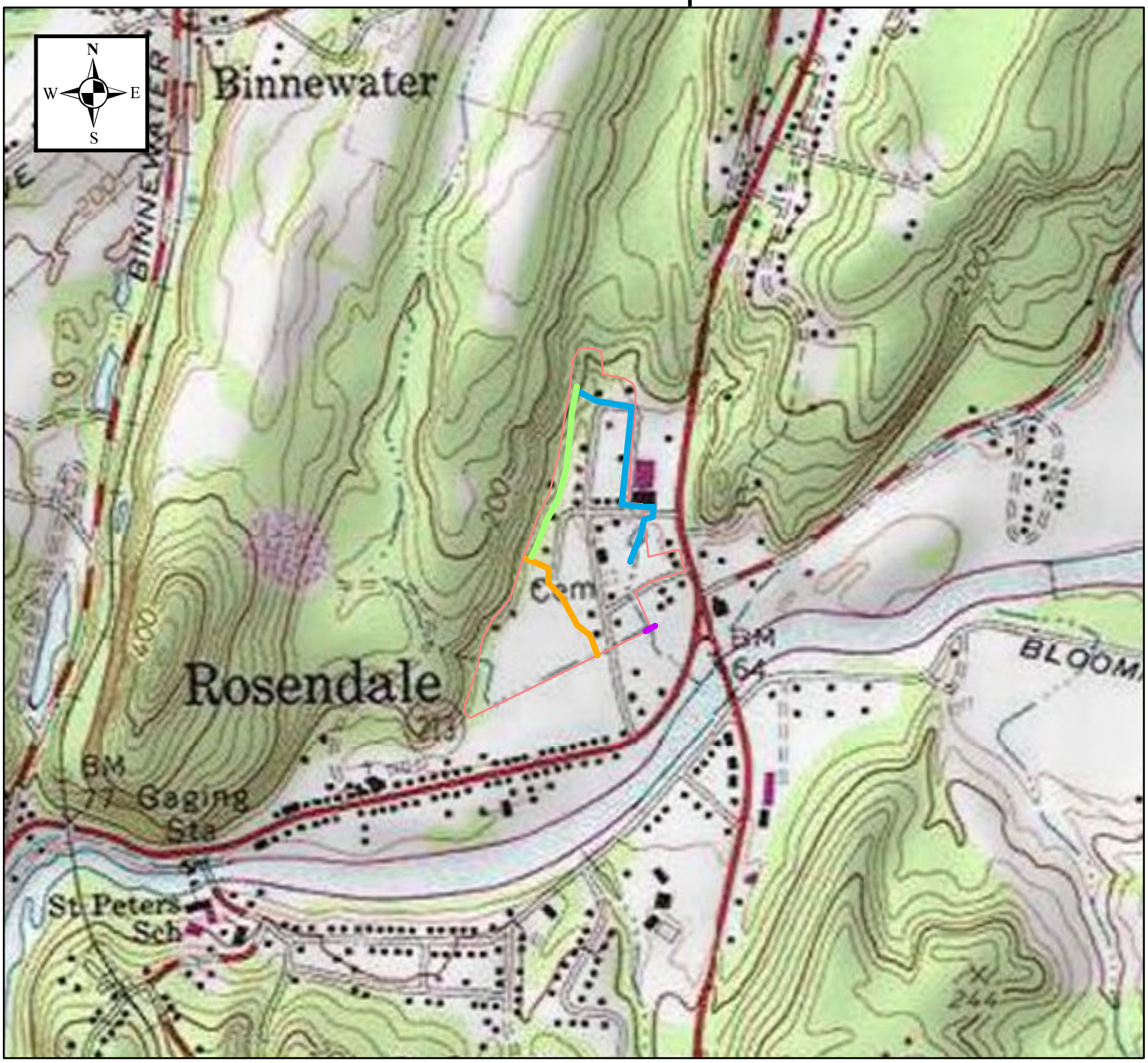
Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

Legend

Approximate Work Locations

- **Eastern Drainage System**
- **Mountain Swale**
- **Western Drainage System**
- **Pedestrian Bridge**
- **Washington Park (Approximate Boundary)**

Location Map



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Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
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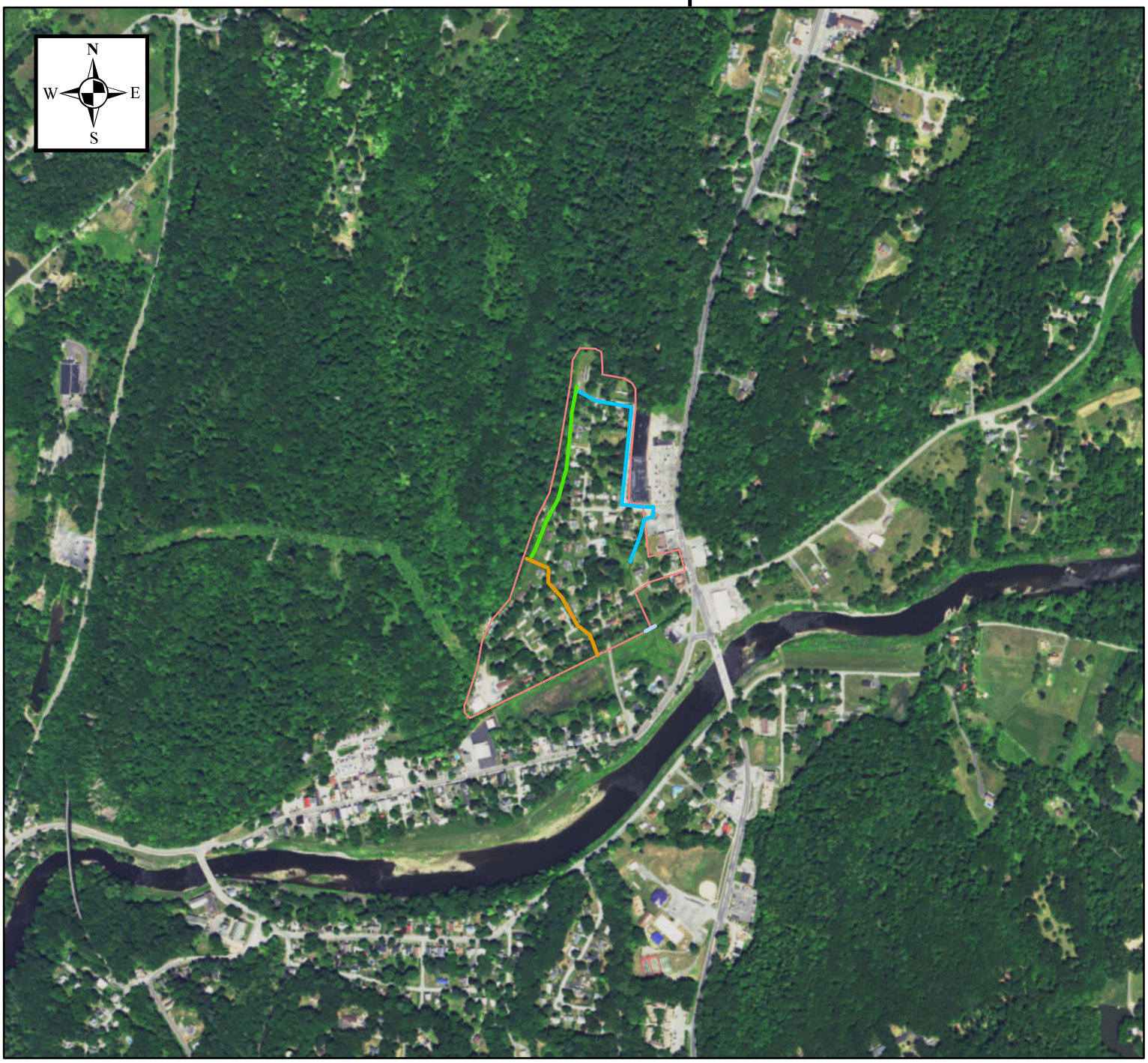

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Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
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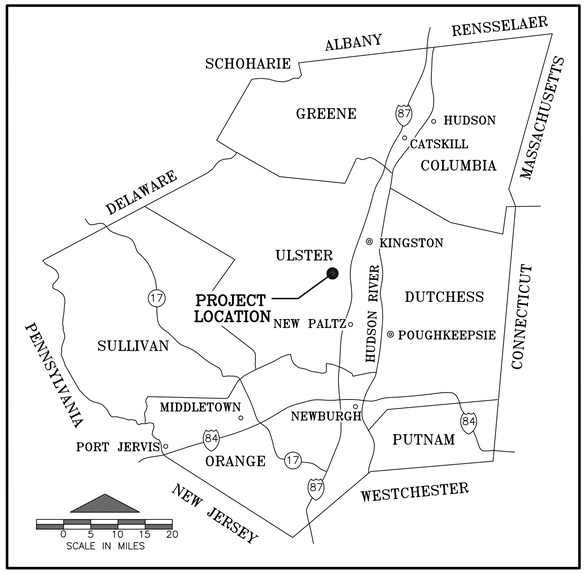
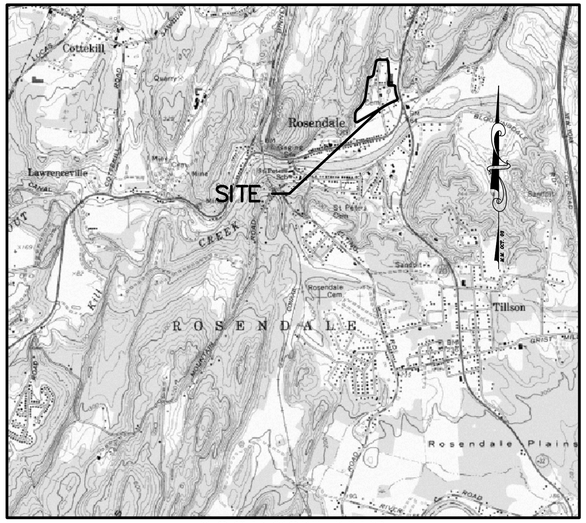


GENERAL LOCATION MAP

AERIAL VIEW



LOCATION MAP
ROSENDALE QUADRANGLE
7.5' MINUTE USGS TOPOGRAPHIC MAP
SCALE: 1" = 2000'

CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION

NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNOR'S OFFICE OF STORM RECOVERY

TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

TOWN OFFICIALS

JEANNE L. WALSH, TOWN SUPERVISOR

TOWN COUNCIL
JOHN P. HUGHES
JENNIFER METZGER
CHRISTOPHER PRYLOPSKI
FRANK KLEPEIS
ROBERT S. GALLAGHER, HIGHWAY SUPERINTENDENT
MANDY CONSTABLE, TOWN CLERK

FEBRUARY 2017

FINAL DESIGN FOR AGENCY REVIEW

SHEET INDEX

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	KEY MAP
3.	EXISTING CONDITIONS 1, EASTERN DRAINAGE SYSTEM
4.	EXISTING CONDITIONS 2, EASTERN DRAINAGE SYSTEM
5.	SELECTIVE DEMOLITION, EASTERN DRAINAGE SYSTEM
6.	PLAN AND PROFILE 1, EASTERN DRAINAGE SYSTEM
7.	PLAN AND PROFILE 2, EASTERN DRAINAGE SYSTEM
8.	EXISTING CONDITIONS, WESTERN DRAINAGE SYSTEM
9.	SELECTIVE DEMOLITION, WESTERN DRAINAGE SYSTEM
10.	PLAN AND PROFILE, WESTERN DRAINAGE SYSTEM
11.	EXISTING CONDITIONS, MOUNTAIN SWALE
12.	GRADING PLAN, MOUNTAIN SWALE
13.	DETAILS
14.	EROSION AND SEDIMENT CONTROL – EAST
15.	EROSION AND SEDIMENT CONTROL – WEST
16.	EROSION AND SEDIMENT CONTROL – MOUNTAIN SWALE

BRINNIER AND LARIOS, P.C.
PROFESSIONAL ENGINEERS AND LAND SURVEYORS
67 MAIDEN LANE
KINGSTON, NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 056741 STATE OF NEW YORK

LICENSED LAND SURVEYOR CHRISTOPHER J. ELLI 49629 STATE OF NEW YORK

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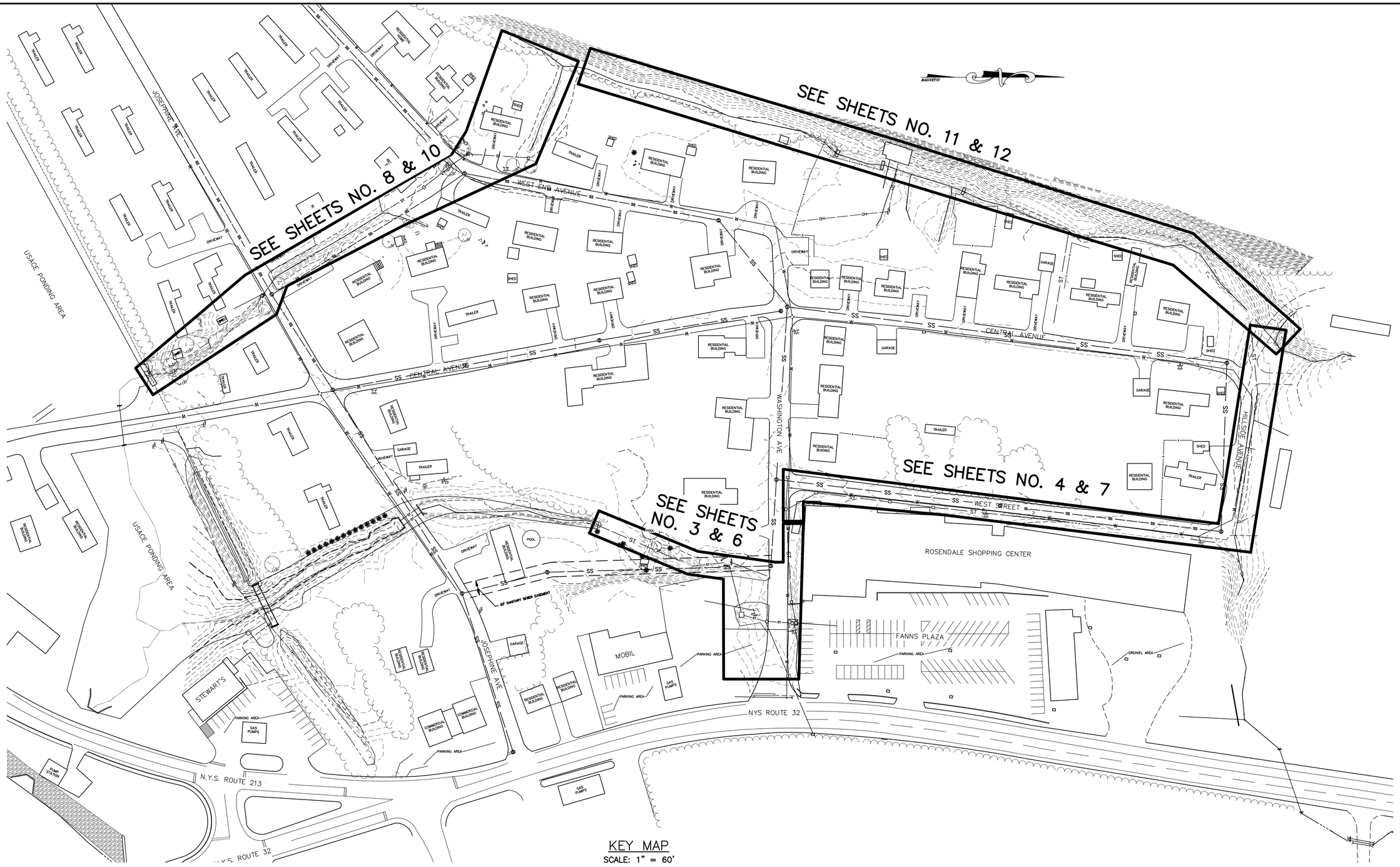
811 Know what's below. Call before you dig.



KEY MAP
SCALE: 1" = 60'

KEY MAP
CONTRACT NO. TR-171

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49629
STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER
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058747
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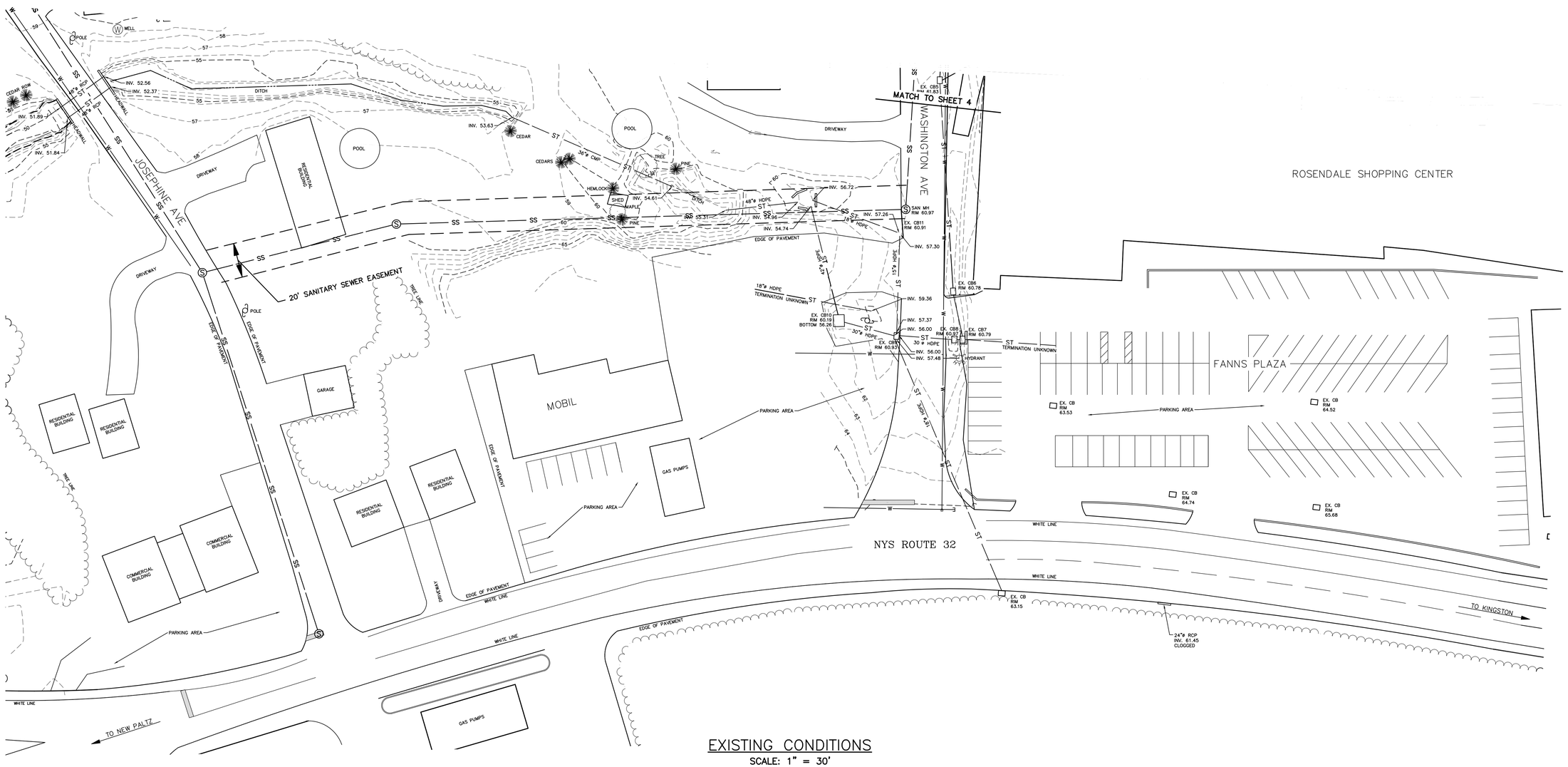

EXISTING CONDITIONS

SCALE: 1" = 30'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
X	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:

1. FIELD SURVEY PERFORMED BY BRINNIER AND LARIOS, P.C. ON JUNE 15, 2016, AUGUST 29, 2016 AND NOVEMBER 23, 2016.
2. USACE PONDING AREA BOUNDARY FROM USACE ROSENDALE FLOOD CONTROL PROJECT DRAWING NUMBER CC-RC-209, SHEET 9 OF 79

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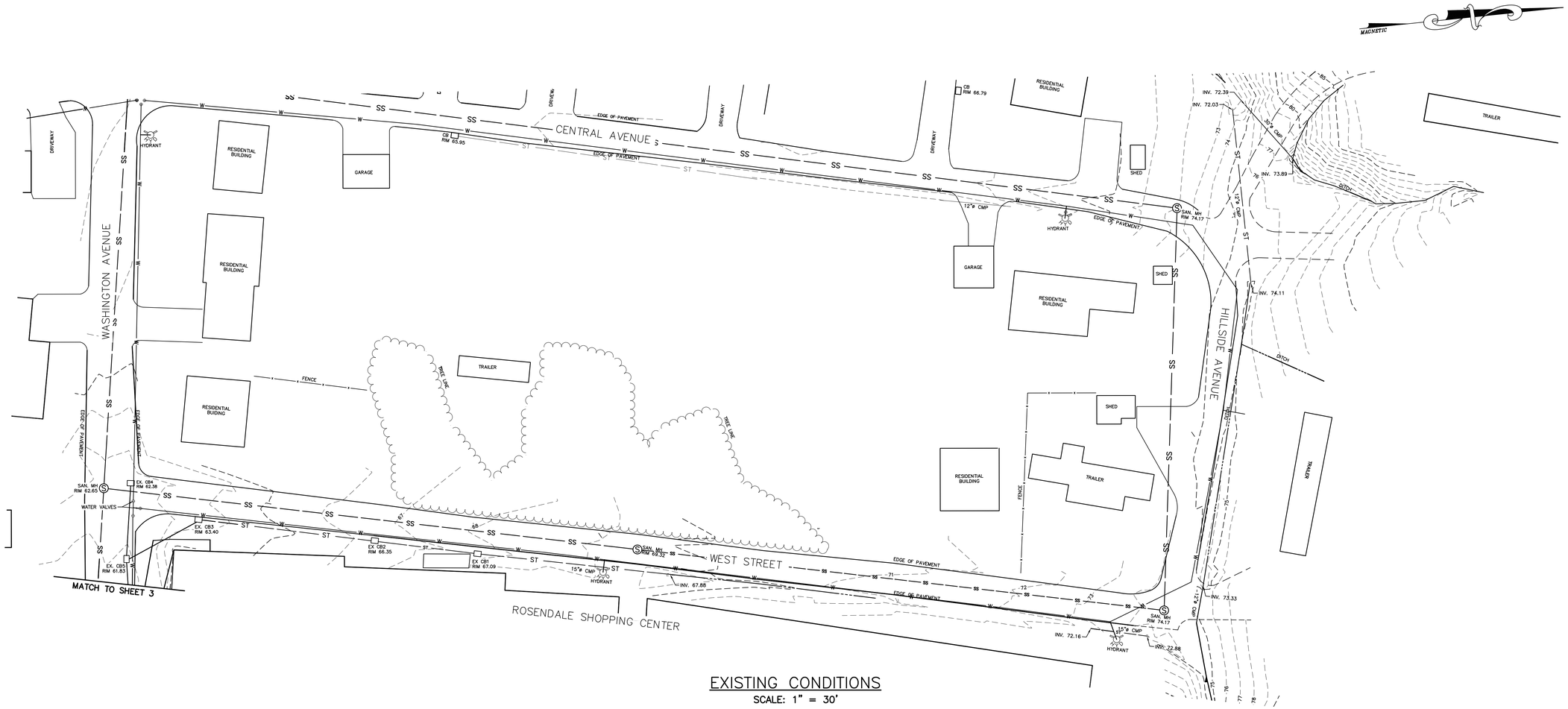

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EXISTING CONDITIONS 2
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TS-171

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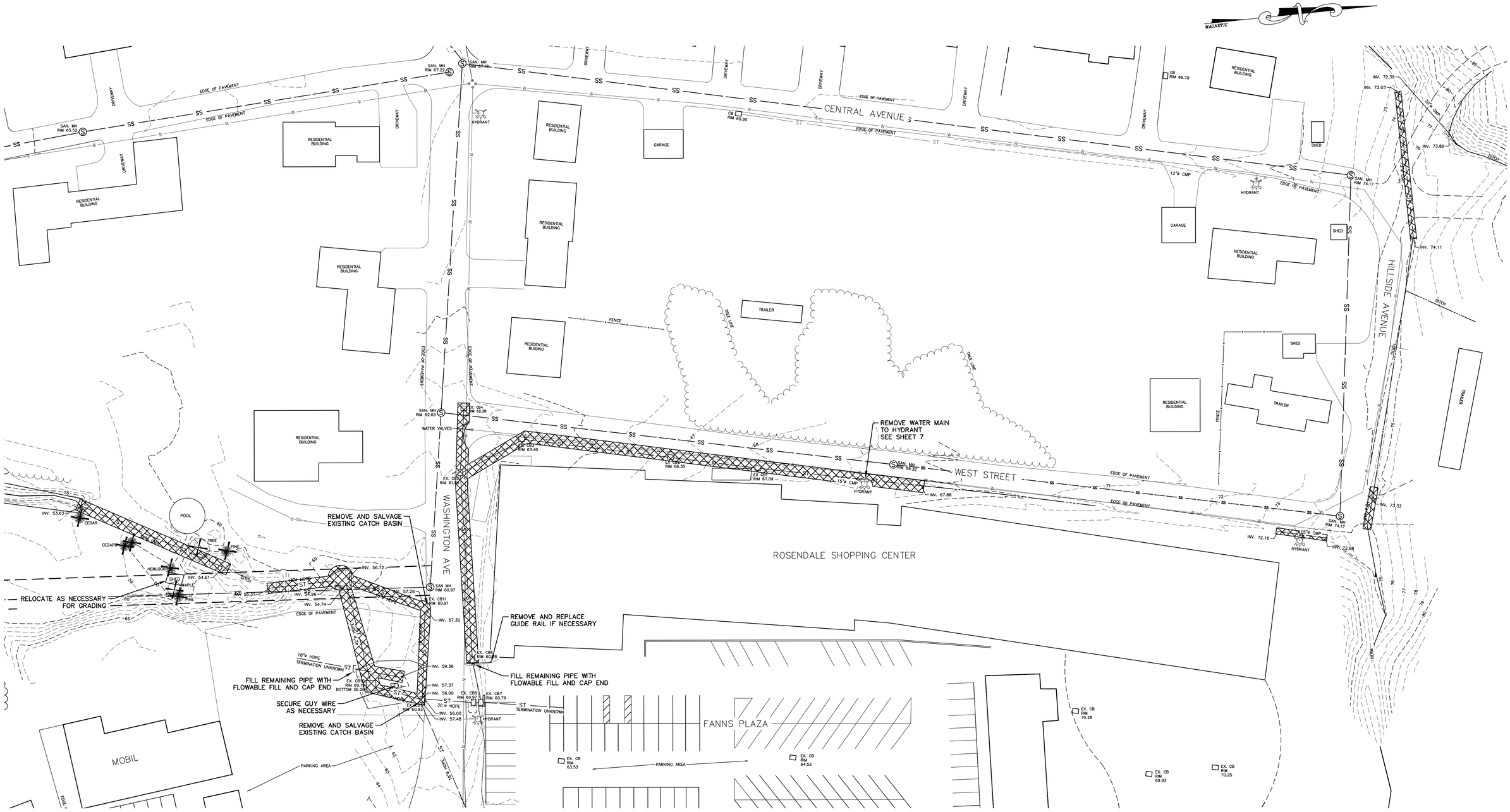

SELECTIVE DEMOLITION PLAN

SCALE: 1" = 30'

SELECTIVE DEMOLITION PLAN
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TS-171

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EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	PROPOSED DEMOLITION
	PROPOSED TREE REMOVAL

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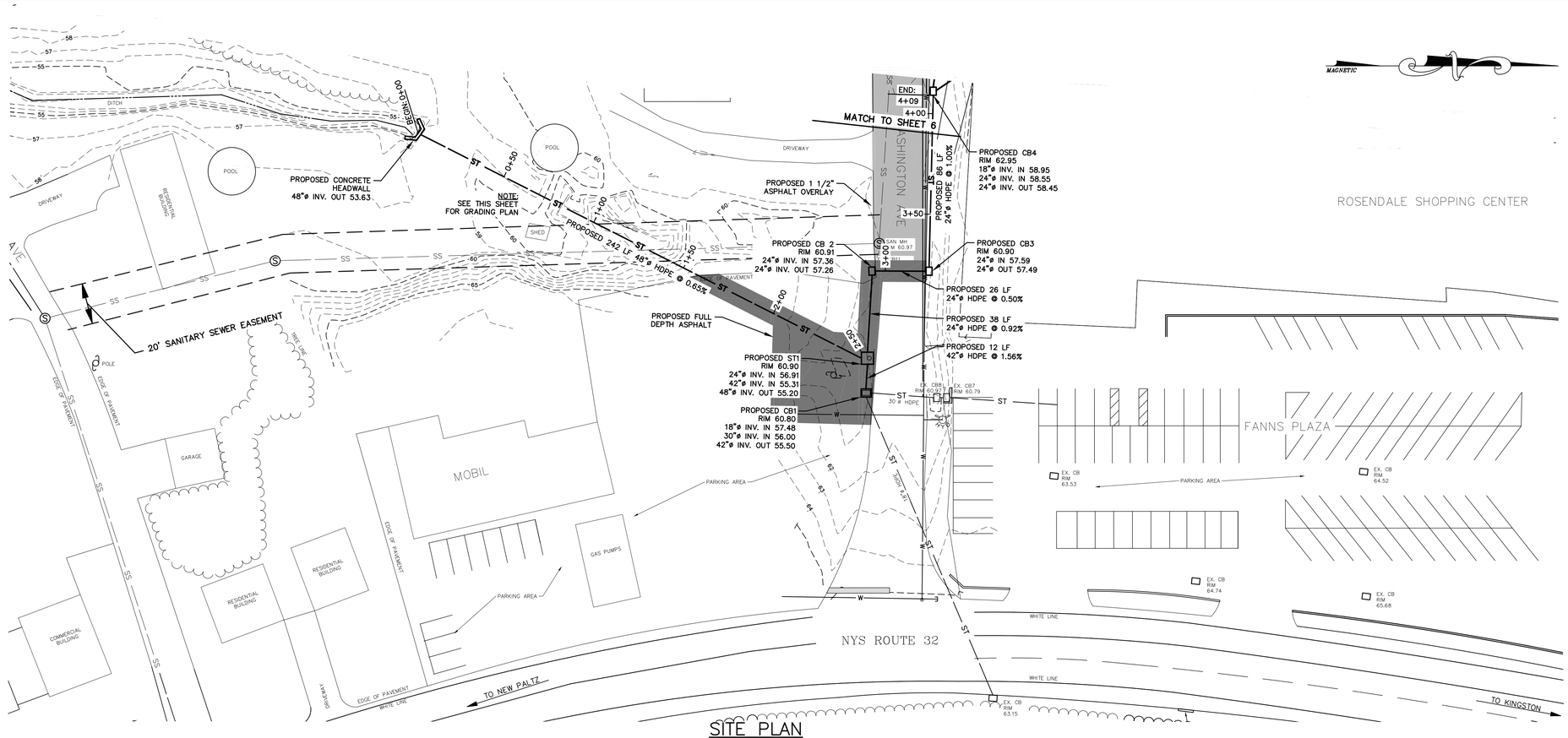
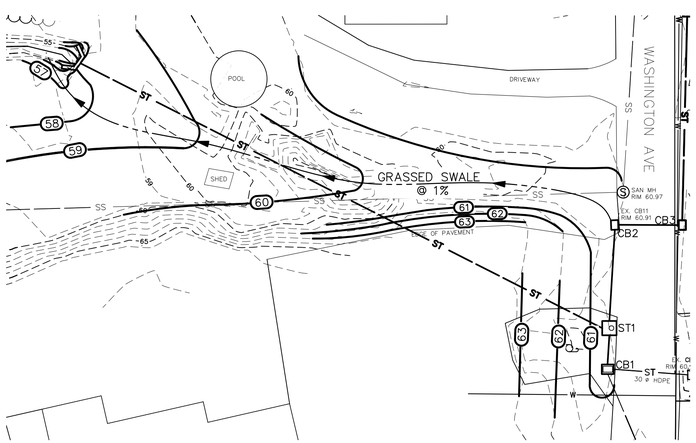
	DWG RJS	CHK JEM	

DRAINAGE STRUCTURE SCHEDULE					
STRUCTURE	TYPE (ID DIMENSIONS)	RIM ELEV. (FT)	INSIDE HEIGHT (FT)	STORM PIPING	INVERT ELEV. (FT)
ST1	6'x5' MANHOLE W 24" COVER	60.90	6 +/-	24"Ø HDPE IN	56.91
				42"Ø HDPE IN	55.31
				48"Ø HDPE OUT	55.20
CB1	4'x5' CATCH BASIN W F&G	60.80	6 +/-	18"Ø HDPE IN	57.48
				30"Ø HDPE IN	56.00
				42"Ø HDPE OUT	55.50
CB2	4'x4' CATCH BASIN W F&G	60.91	4 +/-	24"Ø HDPE IN	57.36
				24"Ø HDPE OUT	57.26
CB3	4'x4' CATCH BASIN W F&G	60.90	4 +/-	24"Ø HDPE IN	57.59
				24"Ø HDPE OUT	57.49
CB4	4'x4' CATCH BASIN W F&G	62.95	5 +/-	18"Ø HDPE IN	58.95
				24"Ø HDPE IN	58.55
				24"Ø HDPE OUT	58.45

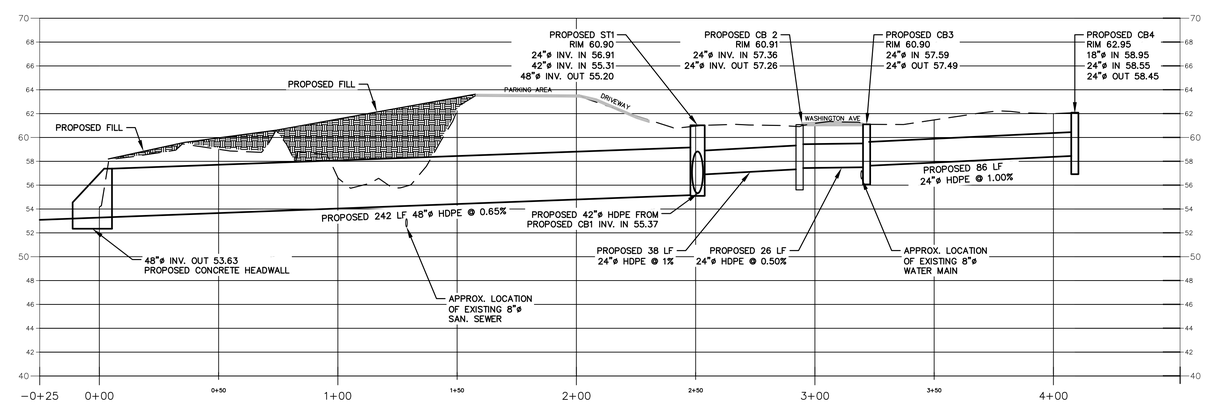
NOTES:
1. SEE PLAN AND PROFILE DRAWINGS FOR ORIENTATION OF PIPES.
2. ALL 4' CB STRUCTURES SHALL HAVE 30" X 48" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #7585 F&G ASSEMBLY OR APPROVED EQUAL.
3. ALL 3' CB STRUCTURES SHALL HAVE 24" X 24" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #5423 F&G ASSEMBLY OR APPROVED EQUAL.



SITE PLAN
SCALE: 1" = 30'



GRADING PLAN
SCALE: 1" = 30'



PROFILE OF STORM SEWER
SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

PLAN AND PROFILE 1
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

NOTE:
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LEGEND

50	CONTOURS (MINOR)		UTILITY POLE	ST	PROPOSED STORM SEWER
52	CONTOURS (MAJOR)		EXISTING HYDRANT		PROPOSED CATCH BASIN
PL	PROPERTY LINE	EX. CB1	EXISTING CATCH BASIN	58	PROPOSED CONTOUR
SS	EXISTING SANITARY SEWER	S	SANITARY MANHOLE		PROPOSED FULL DEPTH ASPHALT PAVEMENT
ST	EXISTING STORM SEWER	M	MANHOLE		PROPOSED 1 1/2" ASPHALT OVERLAY
W	EXISTING WATER LINE				
	DITCH				
	APPROX. TREE LINE				
x	FENCE				

GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER V. FELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER BERNIE M. LARIOS 058747 STATE OF NEW YORK

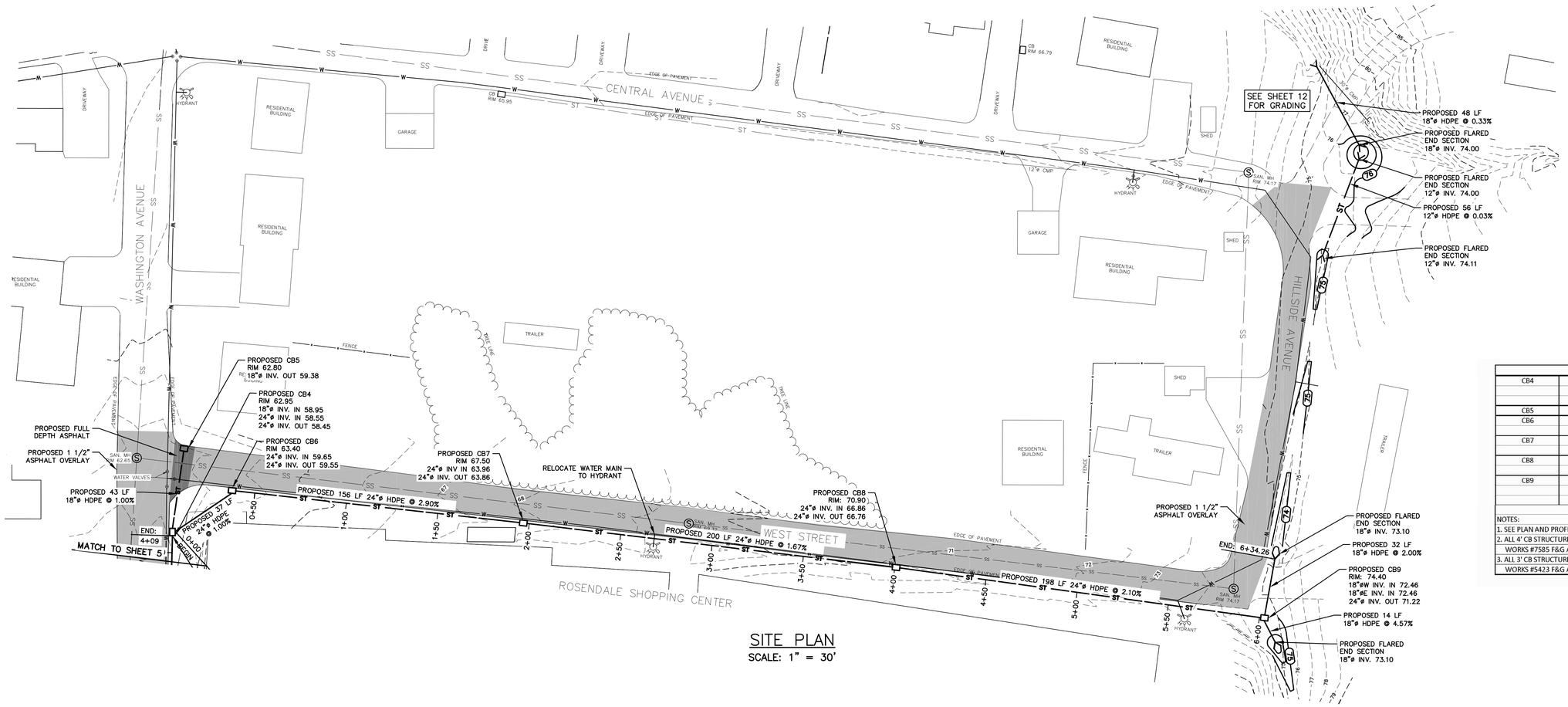
Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		6 OF 16
	DWG. RJS	CHK. JEM	

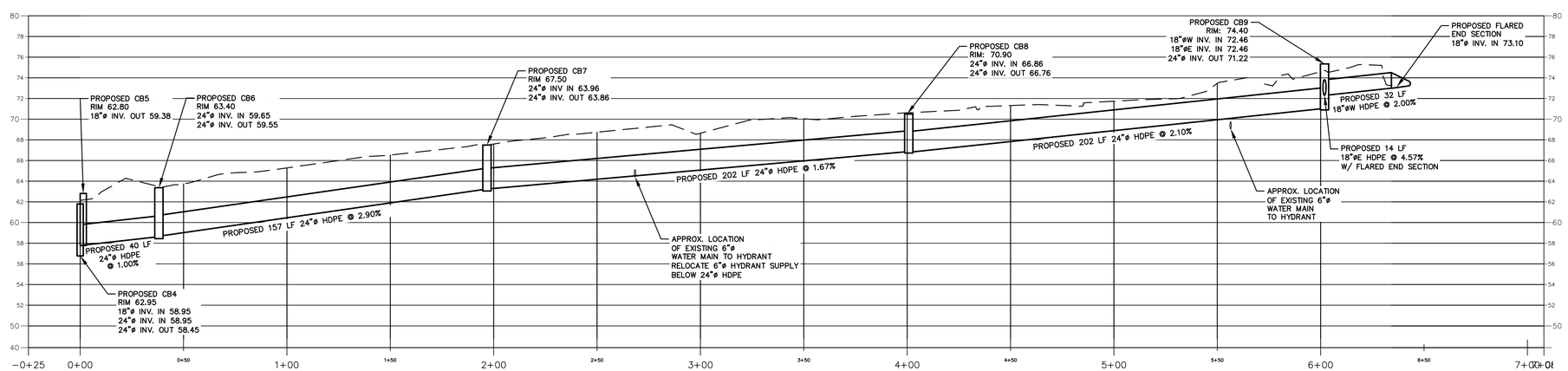


SITE PLAN

SCALE: 1" = 30'

DRAINAGE STRUCTURE SCHEDULE					
CB4	4'x4' CATCH BASIN W F&G	62.95	5 +/-	18"Ø HDPE IN	58.95
				24"Ø HDPE IN	58.55
				24"Ø HDPE OUT	58.45
CB5	3'X3' CATCH BASIN W F&G	62.80	4 +/-	24"Ø HDPE OUT	59.38
CB6	4'x4' CATCH BASIN W F&G	63.40	4 +/-	24"Ø HDPE IN	59.65
				24"Ø HDPE OUT	59.55
CB7	4'x4' CATCH BASIN W F&G	67.50	4 +/-	24"Ø HDPE IN	63.96
				24"Ø HDPE OUT	63.86
CB8	4'x4' CATCH BASIN W F&G	70.90	5 +/-	24"Ø HDPE IN	66.86
				24"Ø HDPE OUT	66.76
CB9	4'x4' CATCH BASIN W F&G	74.40	4 +/-	18"Ø HDPE IN	72.46
				18"Ø HDPE IN	72.46
				24"Ø HDPE OUT	71.22

NOTES:
1. SEE PLAN AND PROFILE DRAWINGS FOR ORIENTATION OF PIPES.
2. ALL 4' CB STRUCTURES SHALL HAVE 30" X 48" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #7585 F&G ASSEMBLY OR APPROVED EQUAL.
3. ALL 3' CB STRUCTURES SHALL HAVE 24" X 24" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #5423 F&G ASSEMBLY OR APPROVED EQUAL.



PROFILE OF STORM SEWER

SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR
- PROPOSED FULL DEPTH ASPHALT PAVEMENT
- PROPOSED 1 1/2" ASPHALT OVERLAY

GRAPHIC SCALE IN FEET
30 0 30

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PLAN AND PROFILE 2
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		7 OF 16
	DWG RJS	CHK JEM	

EXISTING CONDITIONS

SCALE: 1" = 30'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:

1. FIELD SURVEY PERFORMED BY BRINNIER AND LARIOS, P.C. ON JUNE 15, 2016, AUGUST 29, 2016 AND NOVEMBER 23, 2016.
2. USACE PONDING AREA BOUNDARY FROM USACE ROSENDALE FLOOD CONTROL PROJECT DRAWING NUMBER CC-RC-209, SHEET 9 OF 79

NOTE:

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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER SERVIS M. LARIOS 058747 STATE OF NEW YORK

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EXISTING CONDITIONS
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
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SCALE	DATE		SHEET NO.
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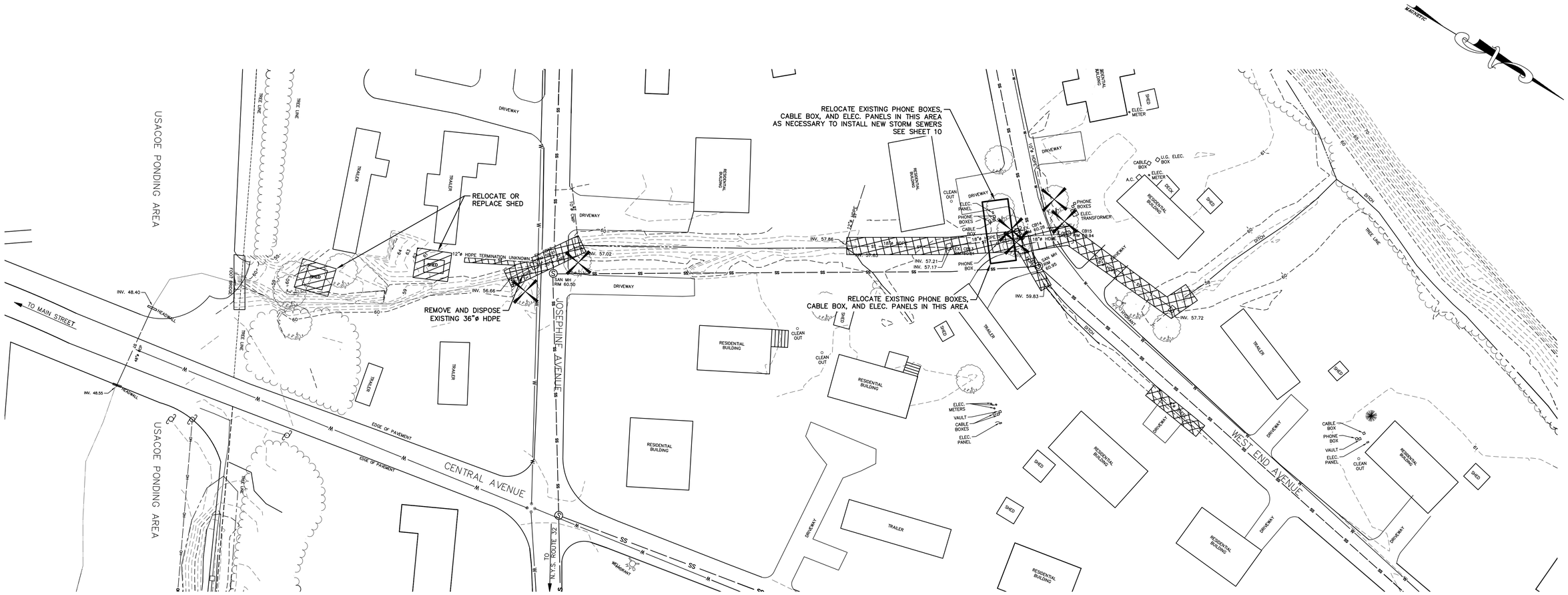
	DWG RJS	CHK JEM	



SELECTIVE DEMOLITION PLAN

SCALE: 1" = 30'

LEGEND

CONTOURS (MINOR)	UTILITY POLE
CONTOURS (MAJOR)	EXISTING HYDRANT
PROPERTY LINE	EXISTING CATCH BASIN
EXISTING SANITARY SEWER	SANITARY MANHOLE
EXISTING STORM SEWER	MANHOLE
EXISTING WATER LINE	PROPOSED DEMOLITION
DITCH	PROPOSED TREE REMOVAL
APPROX. TREE LINE	
FENCE	

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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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SELECTIVE DEMOLITION PLAN
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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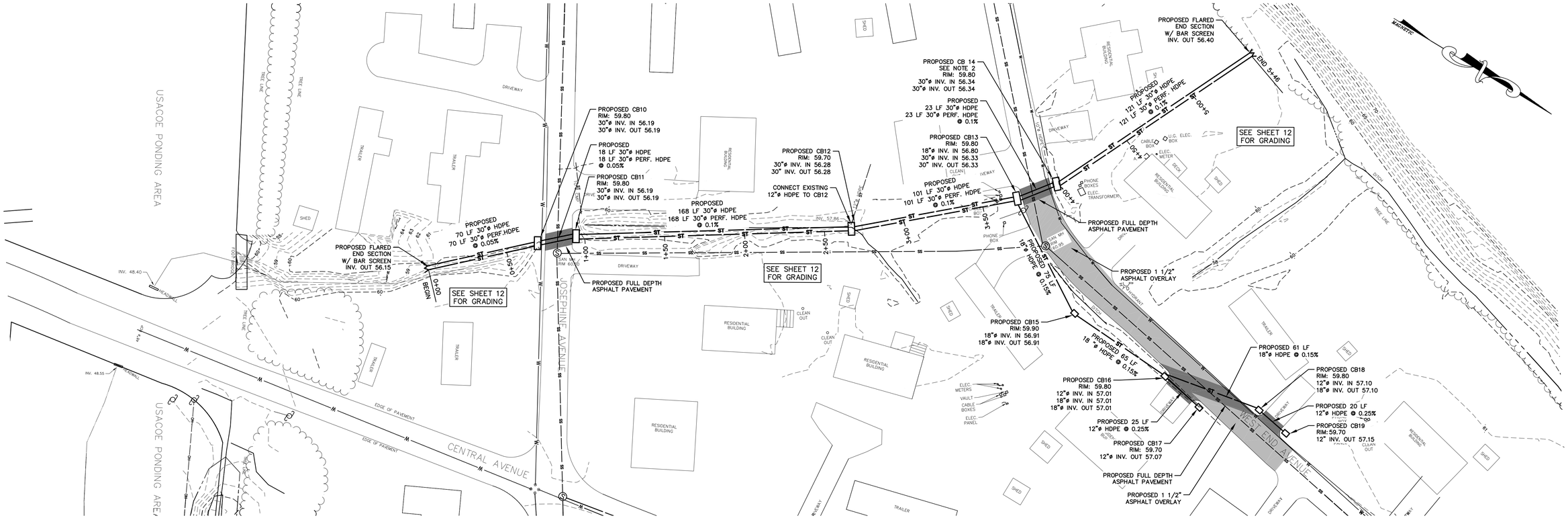
SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		9 OF 16
	DWG RJS	CHK JEM	

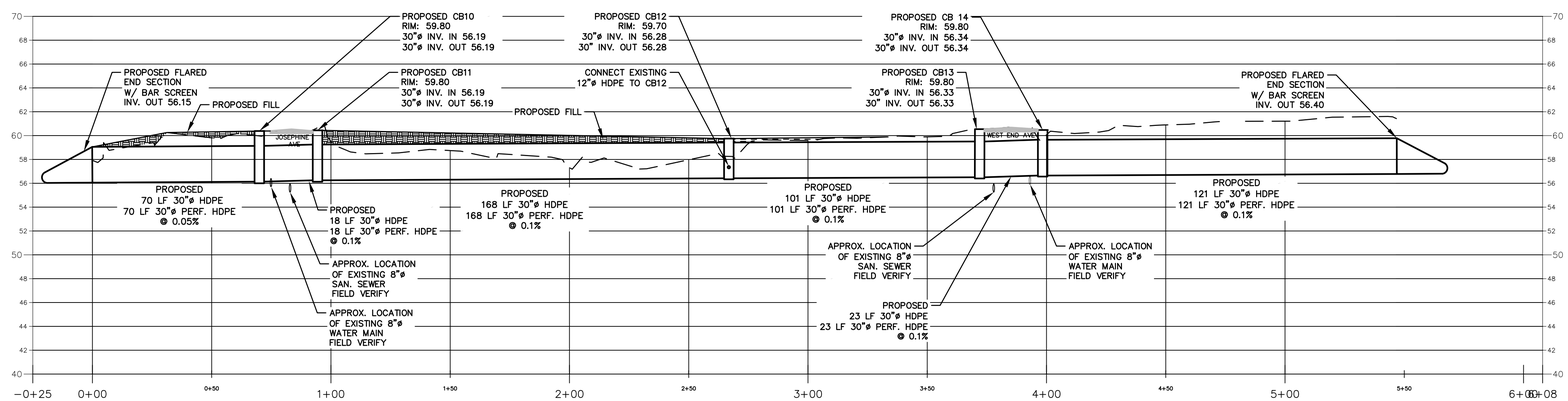


SITE PLAN

SCALE: 1" = 30'

DRAINAGE STRUCTURE SCHEDULE					
CB9	4'x4' CATCH BASIN W F&G	74.40	4 +/-	18"Ø HDPE IN	72.46
				18"Ø HDPE IN	72.46
				24"Ø HDPE OUT	71.22
CB10	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.19
CB11	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.19
CB12	4'X8' CATCH BASIN W F&G	59.80	4	12" HDPE IN	57.86
				2 - 30"Ø HDPE	56.28
CB13	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.33
CB14	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.34
CB15	3'X3' CATCH BASIN W F&G	59.90	4 +/-	18"Ø HDPE	56.91
CB16	4'X4' CATCH BASIN W F&G	59.80	3 +/-	18"Ø HDPE IN	57.01
				12"Ø HDPE IN	57.01
				18"Ø HDPE OUT	57.01
CB17	3'X3' CATCH BASIN W F&G	59.70	3 +/-	12"Ø HDPE OUT	57.05
CB18	3'X3' CATCH BASIN W F&G	59.80	3 +/-	12"Ø HDPE IN	57.10
				18"Ø HDPE OUT	57.10
CB19	3'X3' CATCH BASIN W F&G	59.70	3 +/-	12"Ø HDPE OUT	57.13

NOTES:
1. SEE PLAN AND PROFILE DRAWINGS FOR ORIENTATION OF PIPES.
2. ALL 4' CB STRUCTURES SHALL HAVE 30" X 48" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #7585 F&G ASSEMBLY OR APPROVED EQUAL.
3. ALL 3' CB STRUCTURES SHALL HAVE 24" X 24" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #5423 F&G ASSEMBLY OR APPROVED EQUAL.



PROFILE OF STORM SEWER

SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

LEGEND

50	CONTOURS (MINOR)		UTILITY POLE	ST	PROPOSED STORM SEWER
52	CONTOURS (MAJOR)		EXISTING HYDRANT		PROPOSED CATCH BASIN
PL	PROPERTY LINE	EX. CB1	EXISTING CATCH BASIN	50	PROPOSED CONTOUR
SS	EXISTING SANITARY SEWER	S	SANITARY MANHOLE		PROPOSED FULL DEPTH ASPHALT PAVEMENT
ST	EXISTING STORM SEWER	M	MANHOLE		PROPOSED 1 1/2" ASPHALT OVERLAY
W	EXISTING WATER LINE				
	DITCH				
	APPROX. TREE LINE				
X	FENCE				

NOTE:
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NOTE:
1. FIELD VERIFY TOP OF PIPE ELEVATIONS AT EACH SANITARY CROSSING PRIOR TO INSTALLING ANY STORM SEWER PIPING.
2. CB14 SHALL HAVE AN 8"HIGH X 12"LONG OPENING ON THE SOUTH SIDEWALL AT ELEV. 58.25 FEET.

GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. FELL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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PLAN AND PROFILE
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		10 OF 16
	DWG RJS	CHK JEM	

EXISTING CONDITIONS

SCALE: 1" = 40'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
℄	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:
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GRAPHIC SCALE IN FEET

40 0 40

LICENSED LAND SURVEYOR — CHRISTOPHER J. TELL — 49679 — STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER — DENNIS M. LARIOS — 058741 — STATE OF NEW YORK

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EXISTING CONDITIONS
MOUNTAIN SWALE
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE — ULSTER COUNTY — NEW YORK

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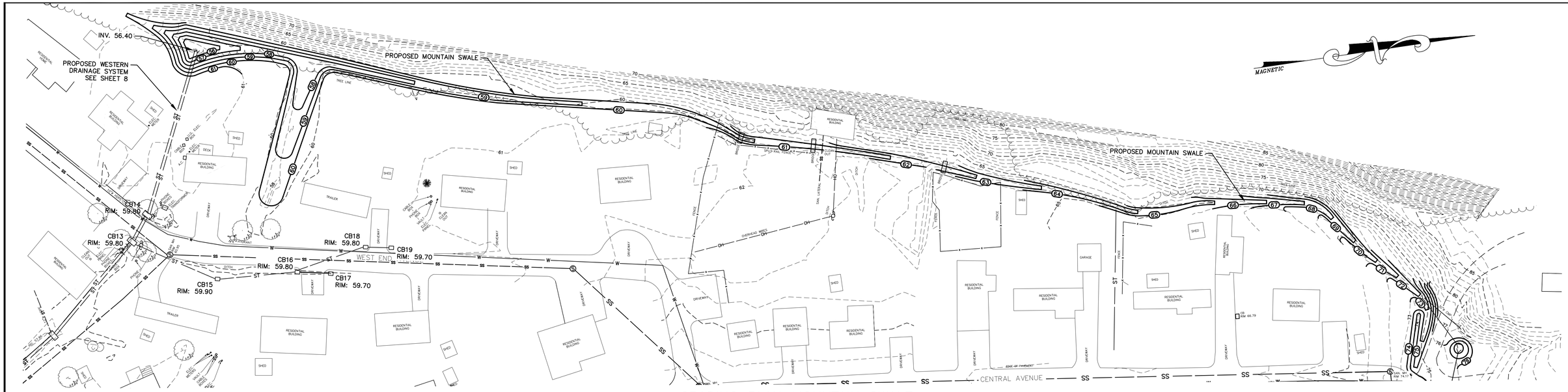
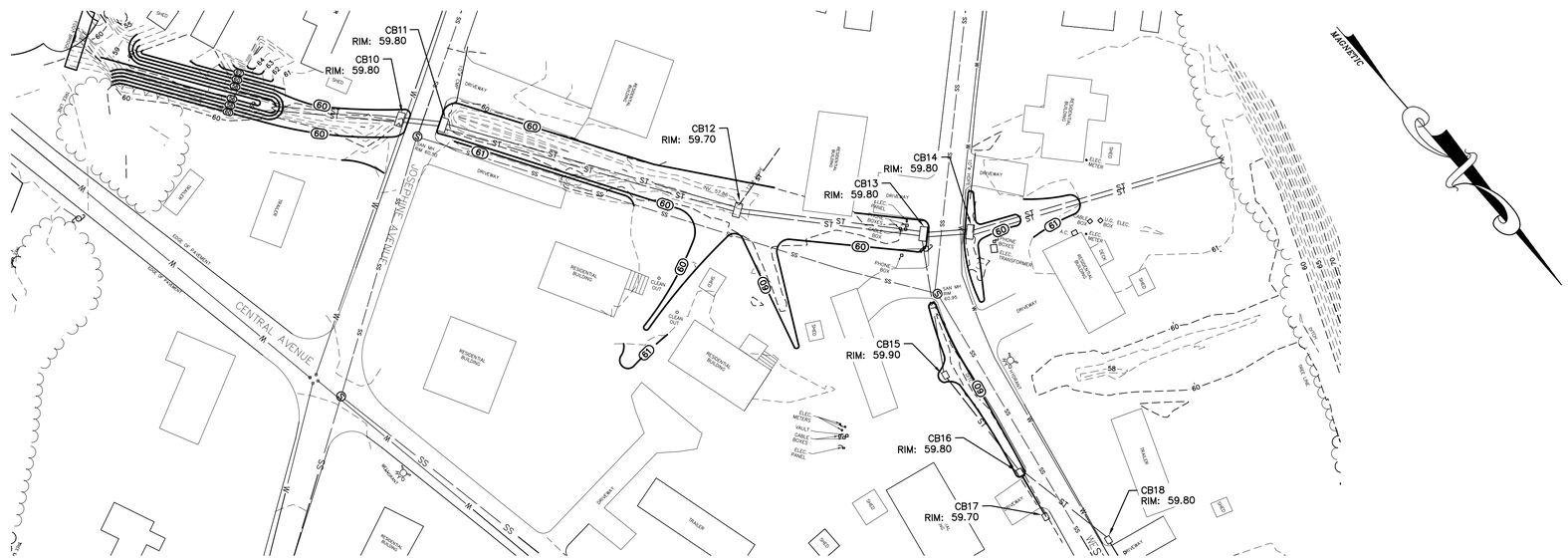
BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE — KINGSTON, N.Y.
Phone: 845-338-7622 — Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 40'	FEB. 2017		11 OF 16
	DWG RJS	CHK JEM	



GRADING PLAN MOUNTAIN SWALE

SCALE: 1" = 40'



GRADING PLAN WESTERN DRAINAGE SYSTEM

SCALE: 1" = 40'

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR

NOTE:
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GRAPHIC SCALE IN FEET

40 0 40

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIE M. LARIOS 058747 STATE OF NEW YORK

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GRADING PLAN
WEST AND MOUNTAIN SWALE
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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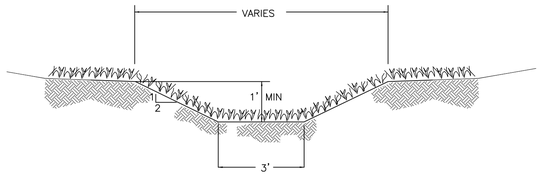
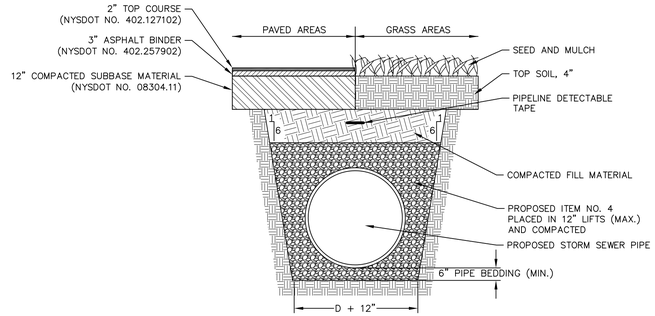
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 40'	FEB. 2017		12 OF 16
	DWG RJS	CHK JEM	

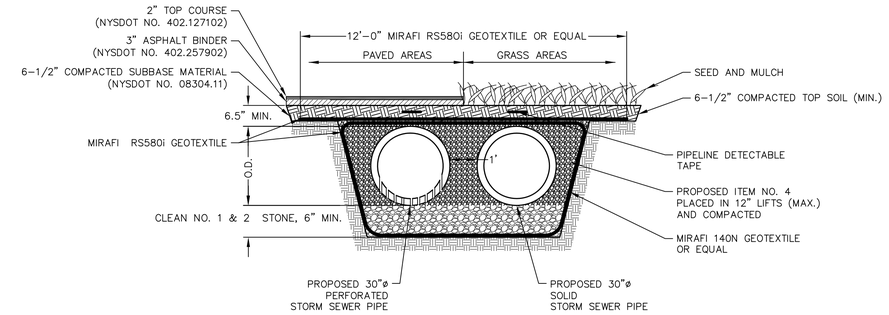


VEGETATION REQUIREMENTS FOR OPEN CHANNELS
SEED MIXTURE SHALL BE TALL FESCUE OR SMOOTH BROMEGRASS (0.45 LBS/1000 SF), KENTUCKY BLUEGRASS (0.6 LBS/1000 SF) OR PERENNIAL RYEGRASS (0.2 LBS/1000 SF). MULCH SEEDED AREAS. FERTILIZE, LIME AND MOW AS NEEDED TO MAINTAIN DENSE PROTECTIVE COVER.

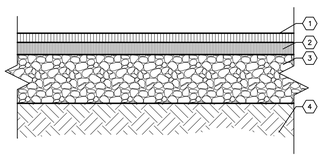
TYPICAL MOUNTAINSIDE SWALE SECTION
NOT TO SCALE



TYPICAL STORM SEWER TRENCH DETAIL
NOT TO SCALE



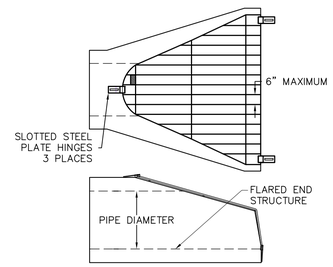
STORM SEWER TRENCH DETAIL
WESTERN DRAINAGE SYSTEM
NOT TO SCALE



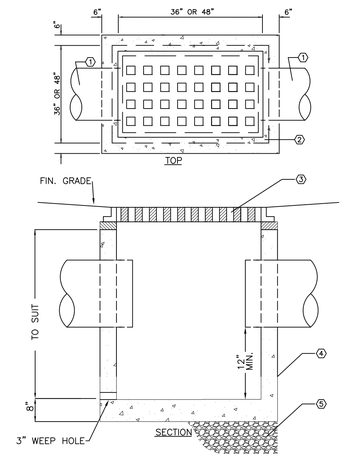
KEYED NOTES

1. 2" TYPE 6F2 ASPHALT WEARING SURFACE OVER TACK COAT. (NYSDOT #403.178202
2. 3" TYPE 3 BINDER OVER PRIME COAT. (NYSDOT #403.138902 M)
3. 12" (MIN.) COMPACTED ITEM #4 BASE MATERIAL. (NYSDOT #304.11 M)
4. WELL-DRAINED SUB-GRADE (COMPACT SUB-GRADE TO 95% MODIFIED PROCTOR),

TYPICAL PAVEMENT SECTION
NOT TO SCALE



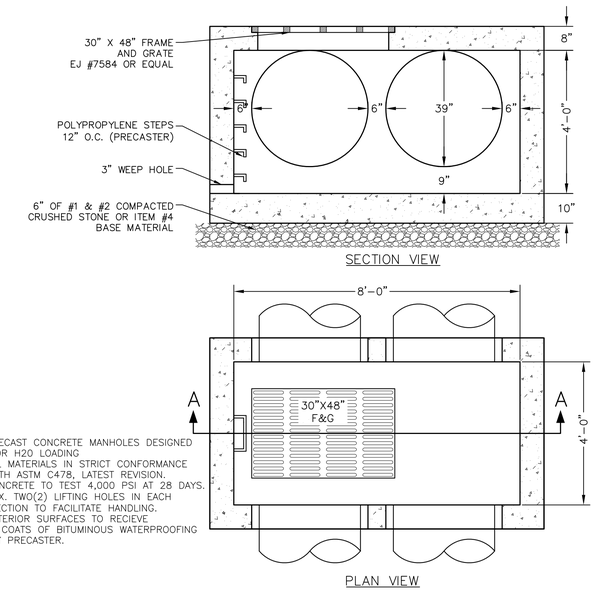
TYPICAL TRASH GUARD
FLARED END
NOT TO SCALE



KEYED NOTES

1. SEE SITE UTILITY PLAN FOR PIPE SIZES AND INVERTS.
2. PRECAST CONCRETE CATCH BASIN, 4,000 PSI CONCRETE, DESIGN FOR AASHTO H20 LOADING
3. HEAVY DUTY FRAME AND GRATE (AASHTO H20 LOADING),
   3'X3' CB – 24"X24" F&G. EJ#5423 OR EQUAL
   4'X4' CB – 30"X48" F&G. EJ#7584 OR EQUAL
   4'X5' CB – 30"X48" F&G. EJ#7584 OR EQUAL
4. EXTERIOR SURFACES TO RECEIVE 2 COATS OF BITUMINOUS WATERPROOFING BY PRECASTER
5. 6" OF #1 & #2 COMPACTED CRUSHED STONE OR ITEM #4 BASE MATERIAL

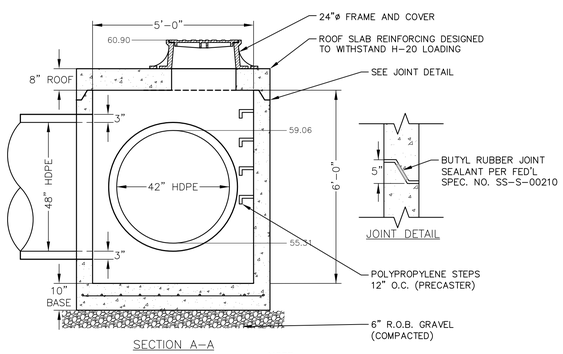
TYPICAL CATCH BASIN DETAIL
NOT TO SCALE



NOTES

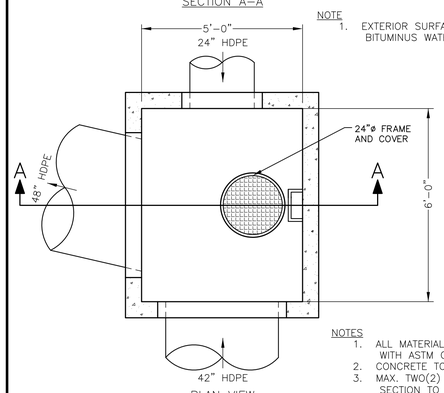
1. PRECAST CONCRETE MANHOLES DESIGNED FOR H20 LOADING
2. ALL MATERIALS IN STRICT CONFORMANCE WITH ASTM C478, LATEST REVISION.
3. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
4. MAX. TWO(2) LIFTING HOLES IN EACH SECTION TO FACILITATE HANDLING.
5. EXTERIOR SURFACES TO RECIEVE 2 COATS OF BITUMINOUS WATERPROOFING BY PRECASTER.

CATCH BASIN CB10–CB14 DETAIL
NOT TO SCALE



NOTE

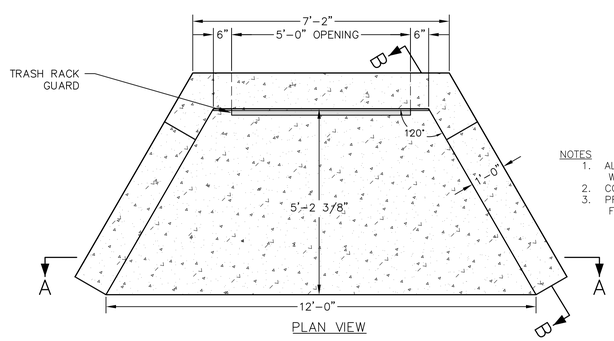
1. EXTERIOR SURFACES TO RECEIVE 2 COATS OF BITUMINUS WATERPROOFING BY PRECASTER.



NOTES

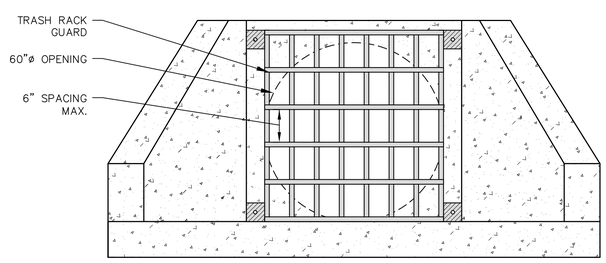
1. ALL MATERIALS IN STRICT CONFORMANCE WITH ASTM C478, LATEST REVISION.
2. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
3. MAX. TWO(2) LIFTING HOLES IN EACH SECTION TO FACILITATE HANDLING.

STORM SEWER ST1 MANHOLE
NOT TO SCALE

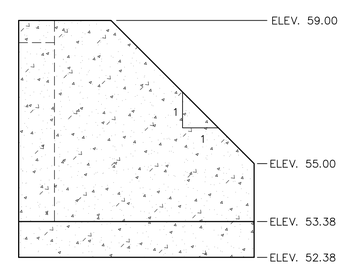


NOTES

1. ALL MATERIALS IN STRICT CONFORMANCE WITH ASTM C478, LATEST REVISION.
2. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
3. PROVIDE LIFTING HOLES AS APPROPRIATE TO FACILITATE HANDLING AND PLACEMENT



SECTION A–A



SECTION B–B

PRECAST 48"ø PIPE HEADWALL, WING WALLS, APRON AND TRASH RACK
NOT TO SCALE

LICENSED LAND SURVEYOR — CHRISTOPHER J. HILL — 49679 — STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER — DENNIS M. LARIOS — 058747 — STATE OF NEW YORK

Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

DETAILS
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE — ULSTER COUNTY — NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE — KINGSTON, N.Y.
Phone: 845-338-7622 — Fax: 845-338-7660

SCALE	DATE		SHEET NO.
N.T.S.	FEB. 2017		13 OF 16
	DWG RJS	CHK JEM	

EROSION & SEDIMENT CONTROL NOTES:

ALL CONSTRUCTION ACTIVITIES INVOLVING THE REMOVAL OR DEPOSITION OF SOILS ARE TO BE PROVIDED WITH APPROPRIATE PROTECTIVE MEASURES TO MINIMIZE EROSION OF, AND CONTAIN SEDIMENT WITHIN, THE AREA UNDER DEVELOPMENT. THOSE METHODS DEEMED MOST EFFECTIVE ARE DESCRIBED BELOW.

1. FOLLOW THE CONSTRUCTION SCHEDULE OUTLINED ON THIS SHEET.
2. CLEAR ONLY WHAT IS REQUIRED FOR THE IMMEDIATE CONSTRUCTION ACTIVITY. CLEARING AND GRADING SHOULD BE DONE AS CONSTRUCTION PROGRESSES. ONLY THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME DURING CONSTRUCTION.
3. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE.
4. PRIOR TO THE START OF CONSTRUCTION, TEMPORARY SILT FENCING AND/OR OTHER APPROVED DEVICES SHALL BE INSTALLED WHERE DEEMED NECESSARY TO PREVENT SOIL MIGRATION INTO WATER COURSES, WETLANDS, STORM DRAINAGE SYSTEMS, AND OFF SITE. SEE SILTATION CONTROL NOTES FOR INSTALLATION AND MAINTENANCE OF SILT FENCING.
5. WHENEVER POSSIBLE, SITE CONSTRUCTION ACTIVITIES SHALL START AT THE NEAREST POINT UPSLOPE OF THE EROSION CONTROL DEVICE, AND PROCEED TO ACTIVITIES FURTHER UPSLOPE.
6. SILT FENCING/TRAPS SHALL BE CLEANED OUT WHEN ACCUMULATED SEDIMENT HAS REDUCED THE CAPACITY OF THE TRAP BY 50%. SEDIMENT REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF IN A MANNER WHICH PREVENTS IT FROM ENTERING THE TRAP AGAIN.
7. WHEN LAND IS EXPOSED DURING DEVELOPMENT, THE PERIOD OF EXPOSURE SHALL BE KEPT TO A MINIMUM. IF PERMANENT VEGETATION, PAVEMENT, AND/OR STRUCTURES ARE NOT COMPLETED WITHIN 14 DAYS, STRAW MULCH (OR OTHER APPROVED MATERIAL) SHALL BE SPREAD TO TEMPORARILY COVER EXPOSED SOILS.
8. NO PERMITTED CONSTRUCTION ACTIVITIES SHALL TAKE PLACE WITHIN ANY WATERCOURSES OR WETLANDS UNTIL APPROPRIATE MEASURES ARE TAKEN TO PROTECT AND/OR TEMPORARILY DIVERT FLOWING WATER PAST THE WORK AREA AND DOWNSTREAM SEDIMENT CONTROLS ARE IN PLACE. IN GENERAL, THESE SEDIMENT CONTROLS SHALL NOT BE REMOVED UNTIL UPSTREAM ACTIVITY HAS BEEN SATISFACTORILY COMPLETED AND THE STREAM FLOWS CLEAR.
9. ALL TOPSOIL WHICH HAS BEEN STRIPPED AND STOCKPILED SHALL BE PLACED AT LEAST 50 FEET FROM ANY WETLAND OR WATERCOURSE. THE TOE OF THE STOCKPILE SHALL BE PROTECTED IN A MANNER WHICH PREVENTS SOIL FROM MIGRATING.
10. RING ANY TEMPORARY STOCKPILES WITH SILT FENCE TO PREVENT EROSION OF THE PILE.
11. ALL TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL REMAIN IN PLACE AND BE MAINTAINED REGULARLY IN PROPER FUNCTIONING CONDITION UNTIL ALL AREAS EXPOSED DURING CONSTRUCTION HAVE BEEN SUITABLY STABILIZED WITH FINAL VEGETATIVE COVER, PERMANENT STRUCTURES, OR PAVEMENT.
12. THE CONTRACTOR SHALL COMPLY WITH THE PROVISIONS OF ALL ENVIROMENTAL/SPDES PERMITS ISSUED FOR THIS PROJECT AND LOCAL, STATE AND FEDERAL REGULATIONS.
13. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PREVENT CONTAMINATION OF THE EXISTING DRAINAGE SWALES BY SILT, SEDIMENT, FUELS, SOLVENTS, LIQUIDS, CONCRETE LEACHATE, OR ANY OTHER POLLUTANT ASSOCIATED WITH THE CONSTRUCTION OF THIS PROJECT.

CONSTRUCTION SCHEDULE:

1. FLAG THE LIMIT OF DISTURBANCE TO DELINEATE THE WORK AREAS.
2. HOLD A PRE–CONSTRUCTION MEETING PRIOR TO STARTING CONSTRUCTION.
3. INSTALL TEMPORARY STABILIZED CONSTRUCTION ENTRANCE.
4. INSTALL TEMPORARY SILT FENCING. SILT FENCE LOCATIONS AS DEPICTED ON PLANS ARE ILLUSTRATIVE. CONTRACTOR SHALL EXERCISE DILIGENCE WHEN INSTALLING SILT FENCE TO CAPTURE ALL SEDIMENT LADEN RUNOFF.
5. CLEAR AND ROUGH GRADE SITE IN THE AREAS OF IMMEDIATE CONSTRUCTION ACTIVITY ONLY.
6. STOCKPILE TOPSOIL. CONSTRUCT CHANNELS. BARE AREAS SHALL BE MULCHED SHOULD GRADING BE DISCONTINUED FOR MORE THAN 14 DAYS.
7. COMPLETE FINAL GRADING FOR SLOPE STABILIZATION.
8. COMPLETE FINAL GRADING. TOPSOIL CRITICAL AREAS AND PERMANENTLY VEGETATE, LANDSCAPE AND MULCH.
9. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AT LEAST ONCE EVERY (7) SEVEN CALENDER DAYS. NEEDED REPAIRS WILL BE MADE IMMEDIATELY. IF GREATER THAN 5 ACRES OF LAND IS DISTURBED AT ONE TIME, THE QUALIFIED INSPECTOR SHALL CONDUCT 2 SITE INSPECTIONS EVERY (7) SEVEN CALENDER DAYS.
10. AFTER THE SITE IS STABILIZED, REMOVE ALL TEMPORARY MEASURES AND INSTALL PERMANENT VEGETATION ON THE DISTURBED AREAS.

INSPECTIONS AND REPORTING:

1. FOLLOW ALL REQUIREMENTS OUTLINED IN THE SWPPP AND NYSDEC SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY, PERMIT NO. GP–0–15–002.

SILTATION CONTROL NOTES:

1. ALL SILTATION AND EROSION CONTROL STRUCTURES SHALL BE INSTALLED PRIOR TO ANY EXCAVATION AND AS ACCEPTABLE TO THE ENGINEER. SILT FENCE SHALL BE MAINTAINED FOR THE DURATION OF SAID WORK AND SHALL NOT BE REMOVED UNTIL APPROVED BY THE ENGINEER.

2. SILT FENCE SHALL CONSIST OF 24" HIGH GEOTEXTILE FABRIC (FILTER CLOTH) INSTALLED PARALLEL WITH THE TOE OF SLOPES AS INDICATED ON THE PLAN.

3. THE FABRIC SHALL BE FASTENED SECURELY AT THE TOP AND MID SECTION TO MIN. 3' LONG FENCE POSTS PLACED A MAX. OF 10' ON CENTER. THE BOTTOM 6" OF FABRIC SHALL BE LAID INTO THE TRENCH TO PREVENT UNDERMINING.

4. ADJOINING SECTIONS OF FILTER CLOTH SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.

5. SILT FENCING SHALL BE CLEANED OUT WHEN NEED, WHEN ACCUMULATED SEDIMENT HAS REDUCED THE CAPACITY BY 50% OR BULGES DEVELOP IN THE FABRIC. SEDIMENT REMOVED BE PROPERLY DISPOSED OF IN A MANNER WHICH PREVENTS IT FROM ENTERING THE AREA AGAIN.

6. SILT FENCE SHALL BE INSTALLED IN ALL AREAS THAT WILL HAVE AN EXCAVATION OPEN FOR MORE THAN 24 HOURS.

7. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF–PRODUCING RAINFALL AND NO LESS THAN ONCE EVERY WEEK. ANY NEED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED AND INSTALLED FOR THEIR APPROPRIATE PHASE OF THE PROJECT.

LANDSCAPING & VEGETATION ESTABLISHMENT NOTES:

1. ALL TEMPORARY SEEDING SHALL BE RYEGRASS (ANNUAL OR PERENNIAL) AT AN APPLICATION RATE OF 0.7 POUNDS PER 1,000 SQUARE FEET. MULCH IMMEDIATELY AFTER SEEDING WITH STRAW AT A RATE OF 2 BALES (90 lbs) PER 1,000 SQUARE FEET.
2. ALL OTHER SITE AREAS SPECIFIED FOR PERMANENT GRASS VEGETATION SHALL BE SEEDED WITH A MIXTURE OF PERENNIAL RYEGRASS SEED OF THE PENNFINE/JUNN VARIETY AT A RATE 0.10 POUNDS PER 1,000 SQUARE FOOT. EROSION AND SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE INSPECTED UNTIL FULL VEGETATION IS ESTABLISHED.
3. STRAW MULCH SHALL BE USED FOR ALL AREAS WHERE VEGETATION IS TO BE ESTABLISHED. MULCH SHALL BE INSTALLED IMMEDIATELY AFTER SEEDING AT A RATE OF 90–100 POUNDS PER 1,000 SQUARE FEET.

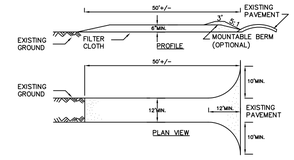
MAINTENANCE SCHEDULE:

MAINTENANCE DURING CONSTRUCTION

- ALL EROSION AND SEDIMENT CONTROL PRACTICES ALONG WITH TREE PROTECTION PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION EVERY SEVEN DAYS. ANY NEEDED REPAIRS WILL BE DONE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED AND INSTALLED FOR THEIR APPROPRIATE PHASE OF THE PROJECT.
- THE STABILIZED CONSTRUCTION ENTRANCES SHALL BE CLEANED OR REPLACED WHEN TRACKING OF SEDIMENT BECOMES EVIDENT.

LONG TERM MAINTENANCE

- WEED AND WATER TO ESTABLISH PERMANENT VEGETATION.
- REPLACEMENT/REHABILITATION SHALL BE MADE TO ANY ERODED AREAS.
- PROVIDE REPLACEMENT OF PLANTINGS, MULCH, WEEDING AND THINNING TO MAINTAIN THE DESIRED APPEARANCE.
- THE STORM WATER MANAGEMENT AREAS SHALL BE KEPT CLEAN OF TRASH AND DEBRIS.
- INSPECT AT LEAST TWICE DURING THE FIRST SIX MONTHS. SUBSEQUENTLY, INSPECTIONS SHOULD BE CONDUCTED ANNUALLY AND AFTER STORM EVENTS GREATER THAN 2".

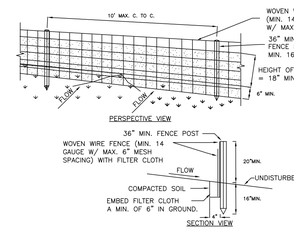


CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY–FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN EVENT.
10. STABILIZED CONSTRUCTION ENTRANCES SHALL BE CONSTRUCTED AND MAINTAINED AT SITE ENTRANCES DURING PHASE I CONSTRUCTION AND AT DRIVEWAY ENTRANCES DURING PHASE II CONSTRUCTION.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

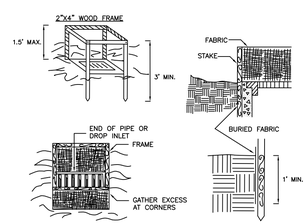


CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER–LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
6. SILT FENCE LOCATIONS AS DEPICTED ON PLANS ARE ILLUSTRATIVE. CONTRACTOR SHALL EXERCISE DILIGENCE WHEN INSTALLING SILT FENCE TO CAPTURE ALL SEDIMENT LADEN RUNOFF.

SILT FENCE DETAIL

NOT TO SCALE



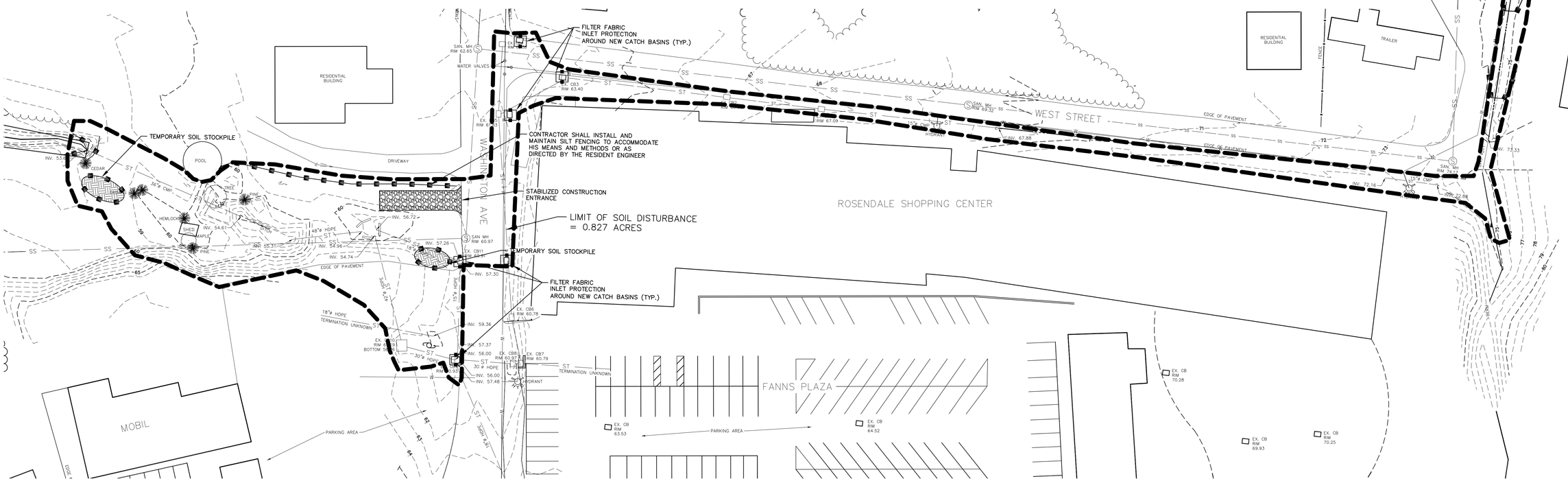
CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40–85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUN DRAINAGE AREA 1 ACRE

FILTER FABRIC INLET PROTECTION

NOT TO SCALE



EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 30'

EROSION AND SEDIMENT CONTROL PLAN – EAST
CONTRACT NO. TS–171

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	SILT FENCE AND CB INLET PROTECTION

NOTE:
The location of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the contractor's failure to exactly locate and preserve any and all underground utilities.

GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. FELL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058741 STATE OF NEW YORK

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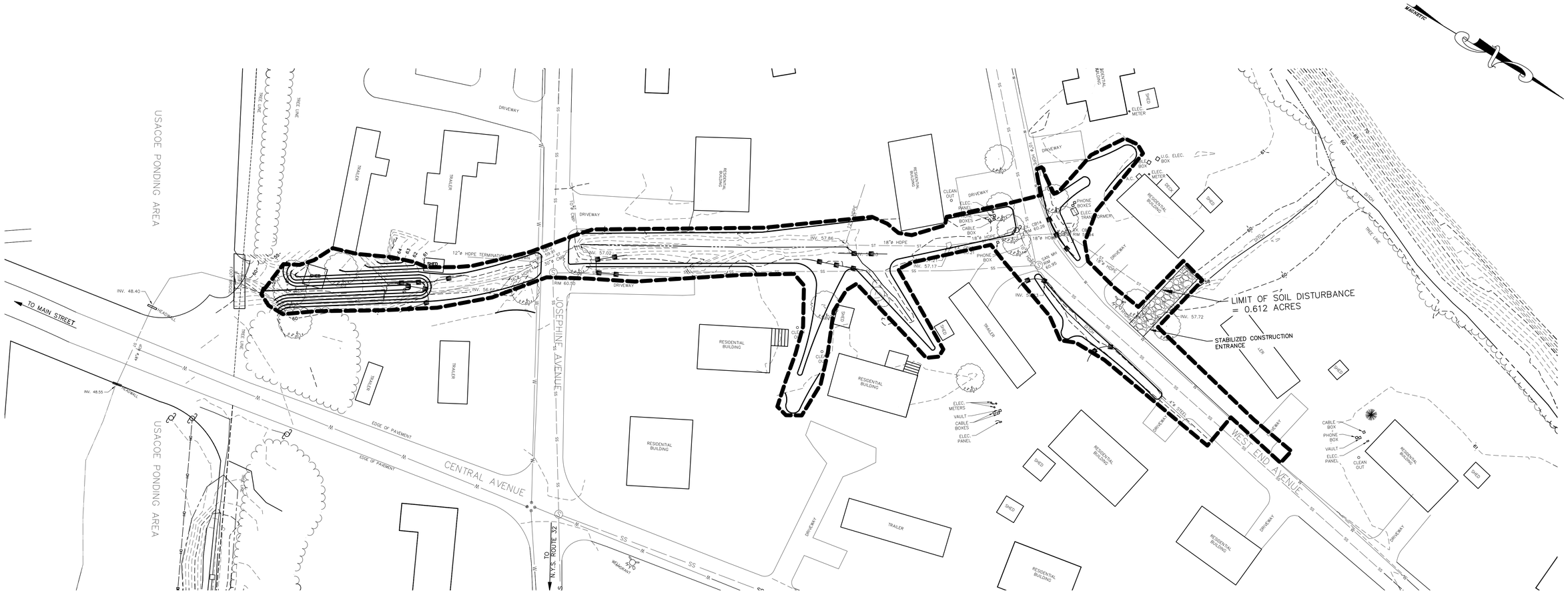
WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845–338–7622 Fax: 845–338–7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		14 OF 16
	DWG RJS	CHK JEM	



EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 30'

NOTE:

1. SEE SHEET 14 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
2. CONTRACTOR SHALL INSTALL AND MAINTAIN SILT FENCING TO ACCOMMODATE HIS MEANS AND METHODS OR AS DIRECTED BY THE OWNERS REPRESENTATIVE.
3. SEE SHEET 12 FOR GRADING PLAN.

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EX. CB1 EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- SILT FENCE AND CB INLET PROTECTION

NOTE:
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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIFER M. LARIOS 058741 STATE OF NEW YORK

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EROSION AND SEDIMENT
CONTROL PLAN – EAST
CONTRACT NO. TS–171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845–338–7622 Fax: 845–338–7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2016		15 OF 16
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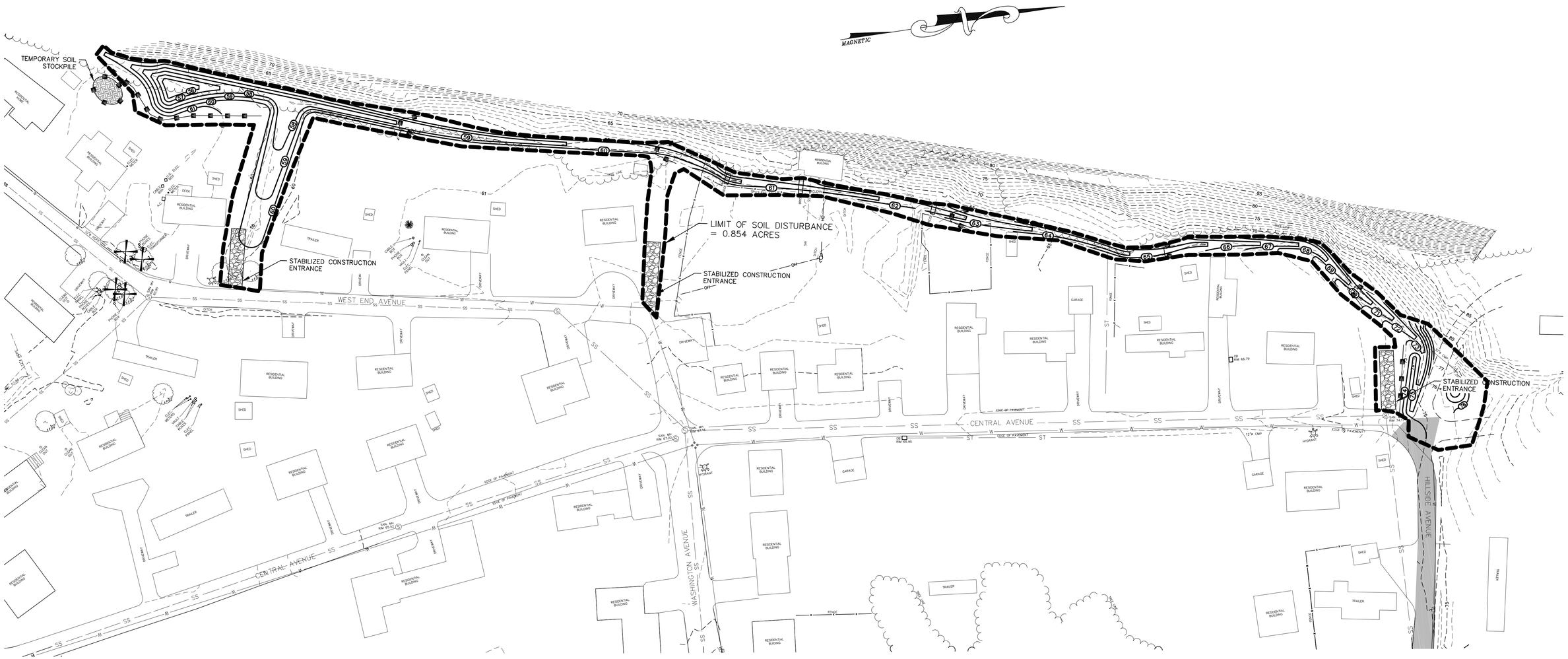

EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 40'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	SILT FENCE AND CB INLET PROTECTION

NOTE:
The location of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the contractor's failure to exactly locate and preserve any and all underground utilities.

NOTE:

1. SEE SHEET 14 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
2. CONTRACTOR SHALL INSTALL AND MAINTAIN SILT FENCING TO ACCOMMODATE HIS MEANS AND METHODS OR AS DIRECTED BY THE OWNERS REPRESENTATIVE.
3. SEE SHEET 12 FOR GRADING PLANS.

GRAPHIC SCALE IN FEET

40 0 40

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL #9679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIS M. LARIOS 058747 STATE OF NEW YORK

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EROSION AND SEDIMENT CONTROL PLAN – MOUNTAIN SWALE
CONTRACT NO. TS–171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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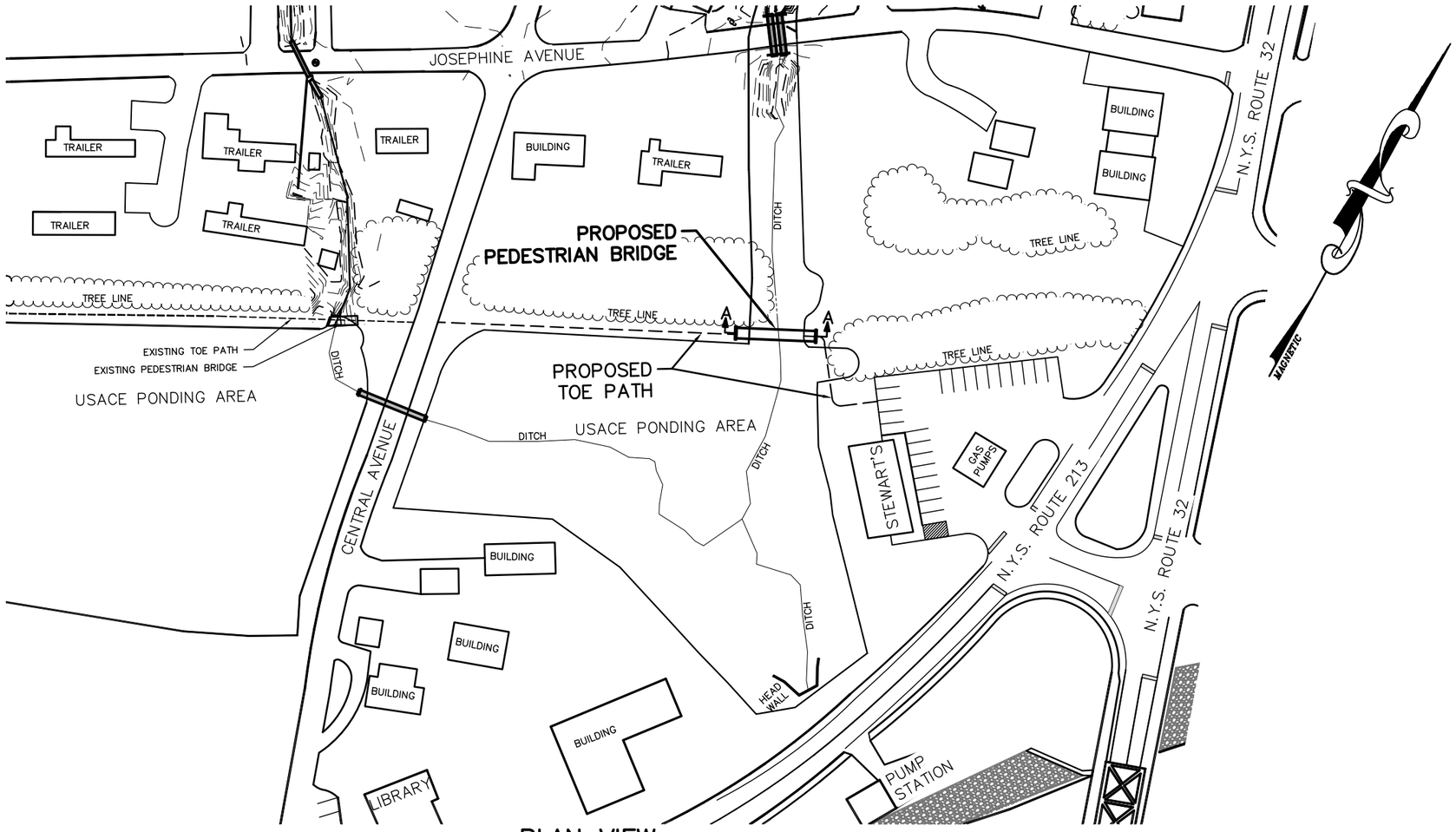
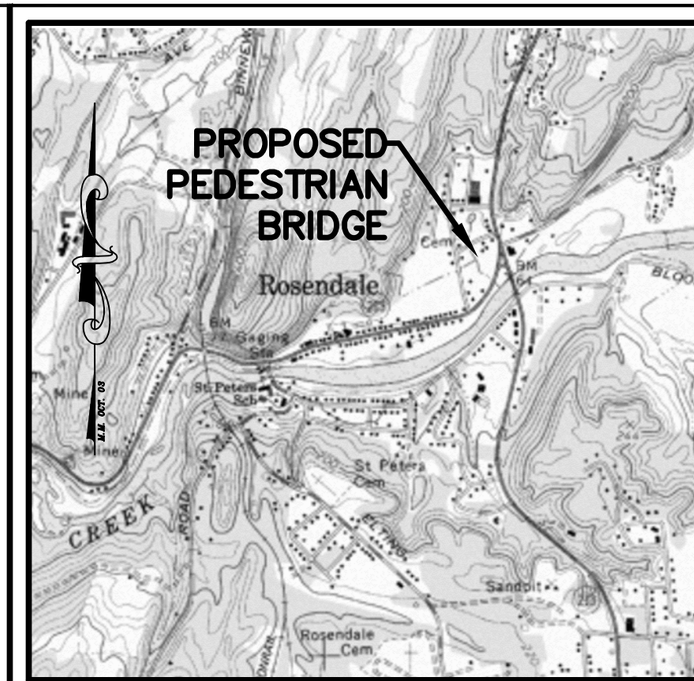
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845–338–7622 Fax: 845–338–7660

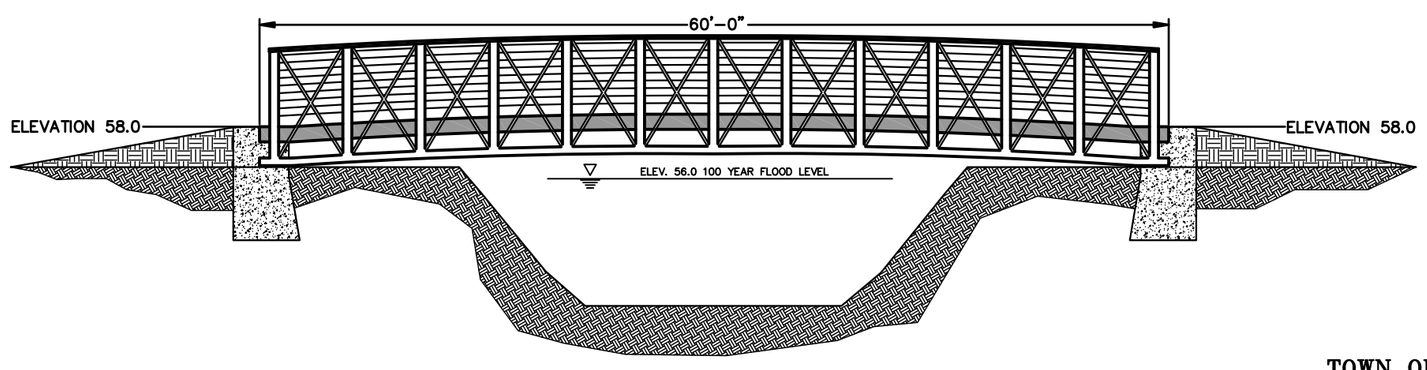
SCALE	DATE		SHEET NO.
1" = 40'	FEB. 2016		16 OF 16
	DWG RJS	CHK JEM	



PLAN VIEW
SCALE: 1" = 100'



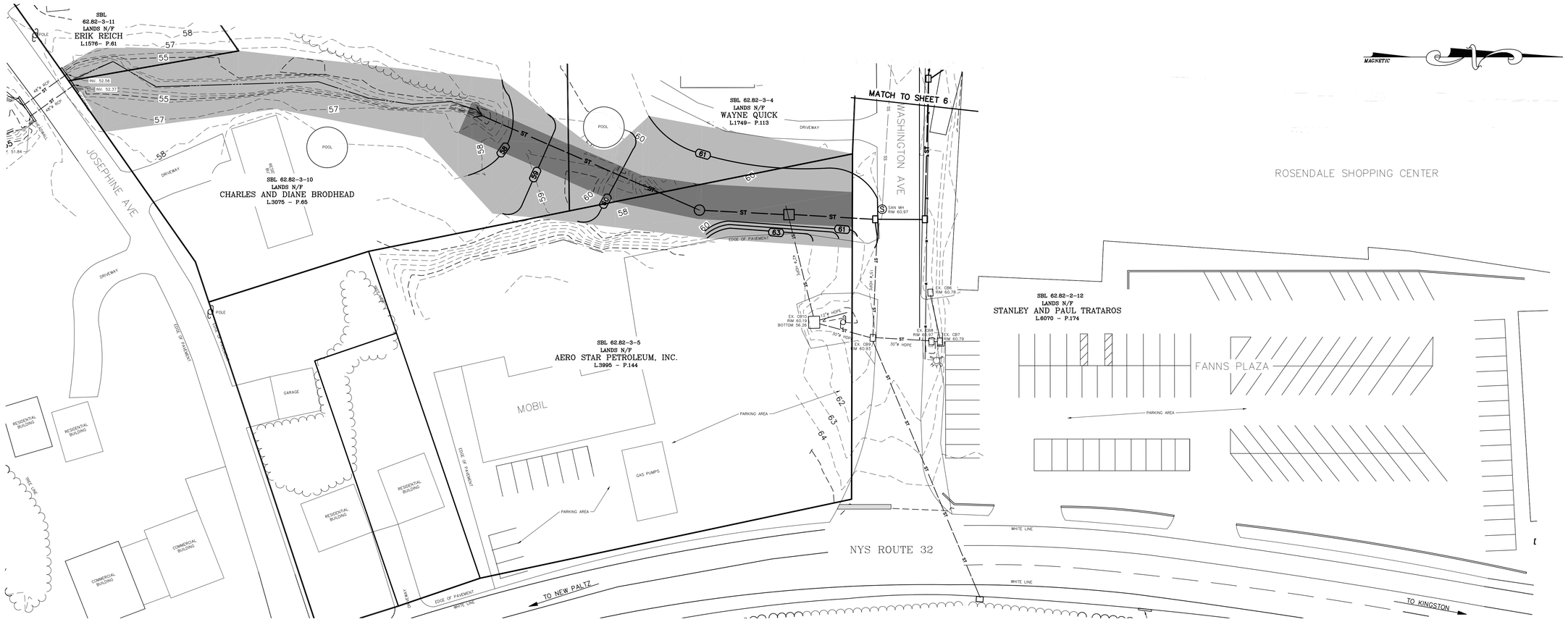
LOCATION MAP
ROSENDALE QUADRANGLE
7.5' MINUTE USGS TOPOGRAPHIC MAP
SCALE: 1" = 2000'



SECTION VIEW A-A
NOT TO SCALE

CHANGE ORDER NO. 1
PEDESTRIAN BRIDGE
WASHINGTON PARK
STORMWATER MITIGATION

TOWN OF ROSENDALE, ULSTER COUNTY, NEW YORK



SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
AERO STAR PETROLEUM INC 62.82-3-5	20' WIDE 0.05 ACRES	WIDTH VARIES 0.07 ACRES
WAYNE QUICK 62.82-3-4	20' WIDE 0.02 ACRES	WIDTH VARIES 0.08 ACRES
CHARLES AND DIANE BRODHEAD 62.82-3-10	20' WIDE 0.03 ACRES	WIDTH VARIES 0.25 ACRES
ERIK REICH 62.82-3-11	NONE	WIDTH VARIES 0.02 ACRES

LEGEND

- 50 — CONTOURS (MINOR)
- 52 — CONTOURS (MAJOR)
- ℄ — PROPERTY LINE
- ST — EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- x — FENCE
- UTILITY POLE
- EX. CB1 — EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- ST — PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- 62 — PROPOSED CONTOUR
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

DRAFT

REQUIRED EASEMENTS
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

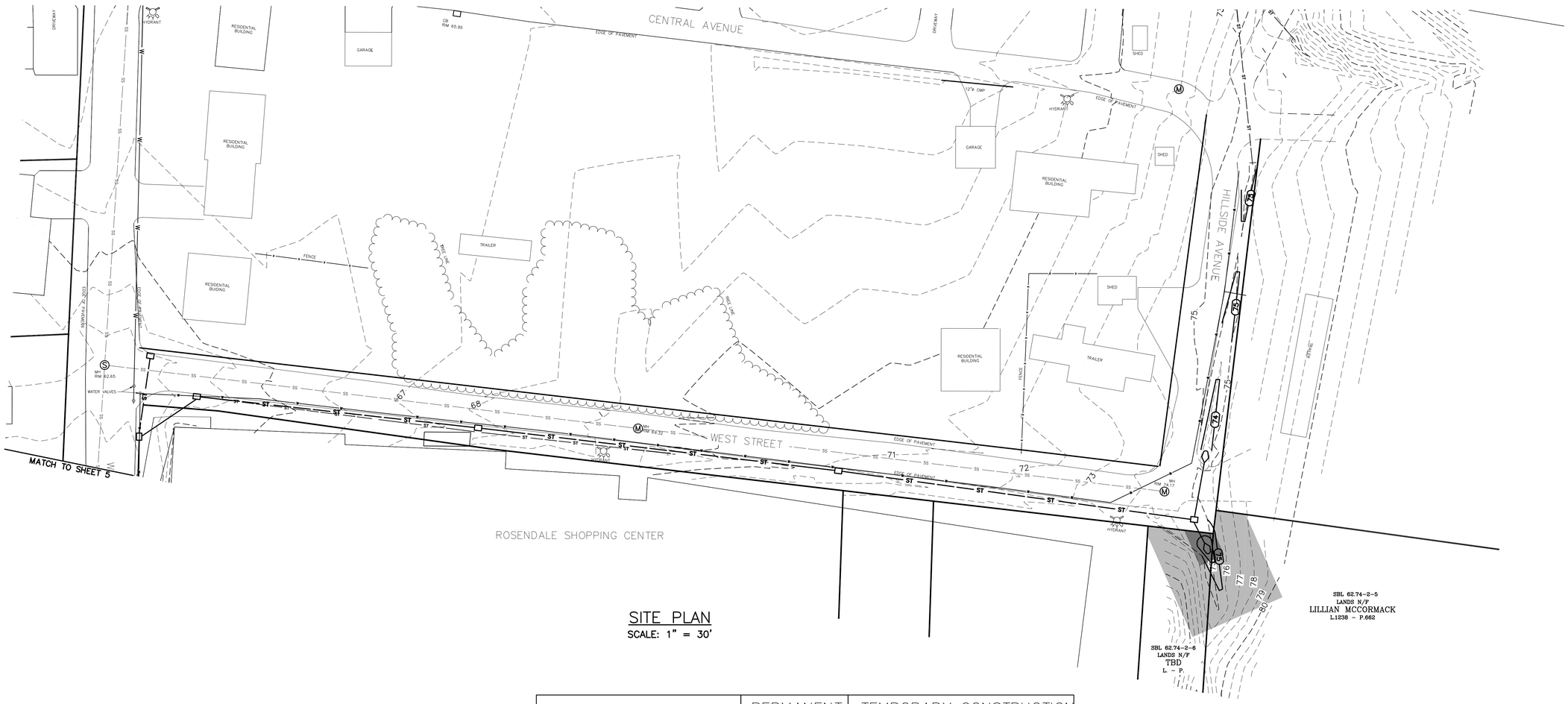
WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE	SHEET NO.
1" = 30'	NOV. 2016	1 OF 4
	DWG RJS / CHK	

MAGNETIC



SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
LILLIAN MCCORMACK 62.74-2-5	20' WIDE 0.001 ACRES	WIDTH VARIES 0.04 ACRES
TBD 62.74-2-6	20' WIDE 0.004 ACRES	WIDTH VARIES 0.03 ACRES

DRAFT

REQUIRED EASEMENTS
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EX. CB1 EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR

GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER BRIAN M. LARIOS 058741 STATE OF NEW YORK

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WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

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ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	NOV. 2016		2 OF 4
	DWG RJS	CHK	

SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
LAMONT VANWEZEMAAL 62.82-1-4	20' WIDE 0.04 ACRES	WIDTH VARIES 0.19 ACRES
WASHINGTON EST. DEV. CORP. 62.82-1-12.100	20' WIDE 0.25 ACRES	WIDTH VARIES 0.38 ACRES
CHARLES AND DIANE BRODHEAD 62.82-1-12.100	NONE	WIDTH VARIES 0.02 ACRES
LAURA AND CAMERON HENDRIX 62.82-1-13	NONE	WIDTH VARIES 0.04 ACRES

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EX. CB1 EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR
- PROPOSED MOUNTAIN SWALE
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIG M. LARIOS 058741 STATE OF NEW YORK

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DRAFT

REQUIRED EASEMENTS
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

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ENGINEERS & LAND SURVEYORS
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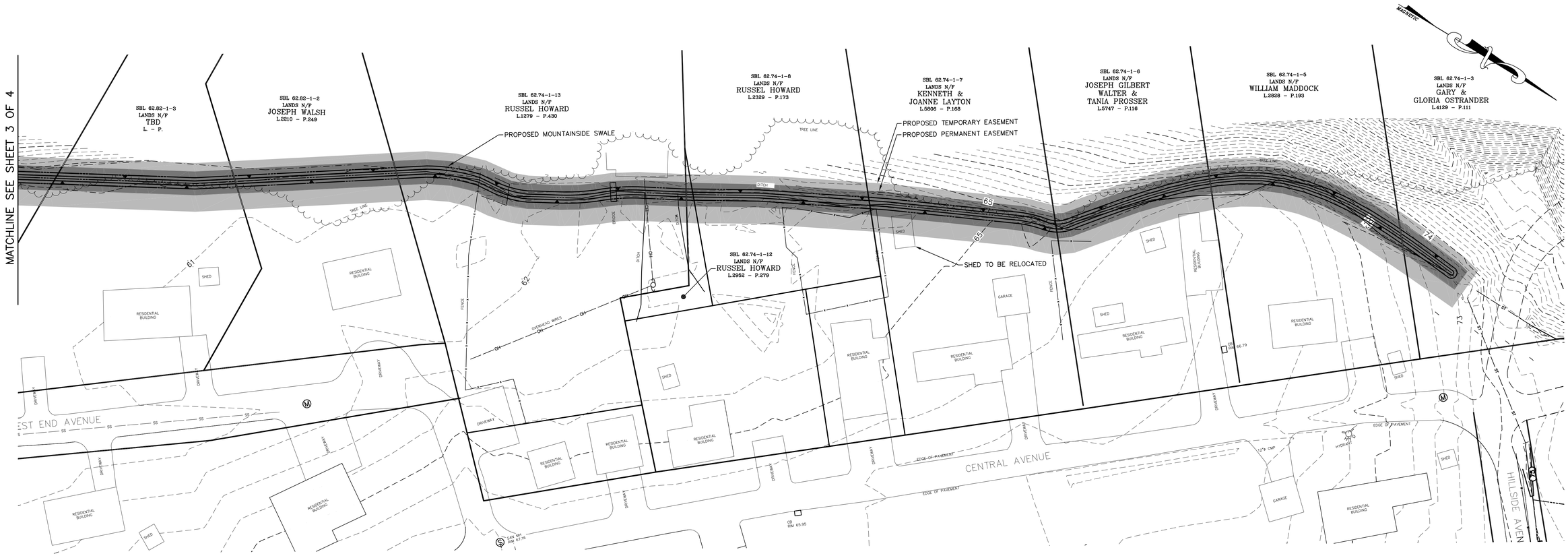
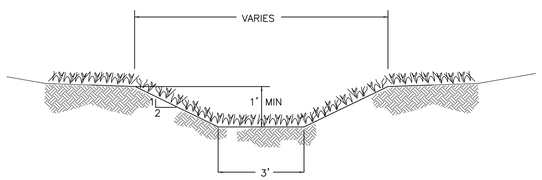
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	NOV. 2016		3 OF 4
	DWG RJS	CHK	



SITE PLAN

SCALE: 1" = 30'



VEGETATION REQUIREMENTS FOR OPEN CHANNELS
SEED MIXTURE SHALL BE TALL FESCUE OR SMOOTH BROMEGRASS (0.45 LBS/1000 SF), KENTUCKY BLUEGRASS (0.6 LBS/1000 SF) OR PERENNIAL RYEGRASS (0.2 LBS/1000 SF). MULCH SEEDED AREAS. FERTILIZE, LIME AND MOW AS NEEDED TO MAINTAIN DENSE PROTECTIVE COVER.

TYPICAL MOUNTAINSIDE SWALE SECTION

NOT TO SCALE

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
TBD 62.82-1-3	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
JOSEPH WALSH 62.82-1-2	15' WIDE 0.03 ACRES	15' WIDE 0.03 ACRES
RUSSELL HOWARD 62.74-1-13	15' WIDE 0.06 ACRES	15' WIDE 0.06 ACRES
RUSSELL HOWARD 62.74-1-12	15' WIDE 0.001 ACRES	15' WIDE 0.002 ACRES
RUSSELL HOWARD 62.74-1-8	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
KENNETH & JOANNE LAYTON 62.74-1-7	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
JOSEPH GILBERT 62.74-1-6	15' WIDE 0.03 ACRES	15' WIDE 0.03 ACRES
WILLIAM MADDOCK 62.74-1-5	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
GARY & GLORIA OSTRANDER 62.74-1-3	15' WIDE 0.02 ACRES	15' WIDE 0.02 ACRES

DRAFT

REQUIRED EASEMENTS
MOUNTAINSIDE SWALE
CONTRACT NO. TR-171

LEGEND

- 50 — CONTOURS (MINOR)
- 52 — CONTOURS (MAJOR)
- R — PROPERTY LINE
- ST — EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- x — FENCE
- UTILITY POLE
- EX. CB1 — EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- ST — PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- 65 — PROPOSED CONTOUR
- PROPOSED MOUNTAIN SWALE
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

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GRAPHIC SCALE IN FEET
30 0 30

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LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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ENGINEERS & LAND SURVEYORS
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Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	NOV. 2016		4 OF 4
	DWG RJS	CHK	

NEW YORK STATE OF OPPORTUNITY.
Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ROSE HARVEY
Commissioner

March 16, 2017

Ms. Dina Peoples
Geologist II
Tectonic Engineering
70 Pleasant Hill Road
Mountainville, NY 10953

Re: HUD
Washington Park Stormwater Mitigation Project
Town of Rosendale, Ulster County, NY
17PR01469

Dear Ms. Peoples:

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). We have reviewed the project in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

Based upon this review, the New York SHPO has determined that no historic properties will be affected by this undertaking.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Michael F. Lynch, P.E., AIA

Director, Division for Historic Preservation

Governor's Office of
Storm Recovery

ANDREW M. CUOMO
Governor

LISA BOVA-HIATT
Executive Director

March 20, 2017

Mohawk Nation Council of Chiefs
Of Haudenosaunee Six Nations Confederacy
Akwesasne Territory Box 336
Via Rooseveltown, NY 13683-0366

Re: Section 106 Compliance for the Washington Park Stormwater Mitigation Project, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, NY

Dear Mohawk Nation Council of Chiefs:

Pursuant to the Disaster Relief Appropriations Act, 2013 (Public Law 113-2) and the Housing and Community Development Act (42 U.S.C. § 5301 et seq.), the Governor's Office of Storm Recovery (GOSR), an office of New York State Homes and Community Renewal's Housing Trust Fund Corporation as a recipient of Community Development Block Grant – Disaster Recovery ("CDBG-DR") funds from the United States Department of Housing and Urban Development ("HUD"), is serving as the entity responsible for compliance with the HUD environmental review procedures set forth in 24 CFR Part 58. GOSR is acting on behalf of HUD in providing the enclosed project information and inviting this discussion with your Nation to respond with any concerns or comments.

GOSR processes environmental reviews for projects funded with HUD CDBG-DR on a case-by-case basis. In accordance with Section 101(d)(6)(B) of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470a), and its implementing regulations, 36 Code of Federal Regulations (CFR) Part 800, this letter serves as notification of the proposed action. This consultation is being sent to the Delaware Nation, Delaware Tribe of Indians, Mohawk Nation, Saint Regis Mohawk Tribe, and the Stockbridge-Munsee Community Band of Mohicans.

Area of Potential Effect: The Washington Park Stormwater Mitigation Project ("Proposed Project") involves the installation of culvert pipes, drainage ditches, swales, catch basins, a storm sewer manhole, and a pedestrian bridge in the Town of Rosendale, Ulster County, New York. Washington Park, the residential area located northwest of the intersection of New York State (NYS) Route 32 and NYS Route 213, has been subjected to historic, chronic flooding during large rain events. The proposed drainage improvements will effectively convey water during 50-year storm events and alleviate chronic flooding problems. The project location is identified on the enclosed street map and USGS topographic map.

Project Description: CDBG-DR funding is proposed for the improvement of two defined drainageways that cross through the Washington Park area. Runoff from a hill/mountain to the

northeast and runoff from the hillside adjacent to Fann's Plaza are conveyed by storm sewers to an extant United States Army Corps of Engineers (USACE) ponding area located on the south side of the Site (hereafter referred to as the Eastern Drainage System). Runoff from a hill/mountain to the west is conveyed via a swale at the base of the mountain to a storm sewer system that crosses under West End Avenue and Josephine Avenue to an existing USACE ponding area on the west side of Central Avenue (hereafter referred to as the Western Drainage System).

Improvement of the Eastern Drainage System will involve the construction of the following: a drainage swale along Hillside Avenue; a new storm sewer along West Street (from Hillside Avenue to Washington Avenue); a new storm sewer on Washington Avenue (from West Street to where it crosses under Washington Avenue); and a new storm sewer from Washington Avenue to the USACE ponding area. An existing USACE ponding area will also be regraded to provide a uniform alignment and cross sectional area that is consistent with the original USACE Rondout Creek Flood Control design. Proposed Eastern Drainage System improvements will include the installation of 181 linear feet (LF) of 48" diameter HDPE culvert pipe, 46 LF of 36" diameter HDPE culvert pipe, 745 LF of 24" diameter HDPE culvert pipe, 46 LF of 18" diameter HDPE culvert pipe, nine catch basins, and one storm sewer manhole. There are a total of eight trees located east of NYS Route 32 and south of Washington Avenue to be removed for project construction. These trees are situated between residential and commercial properties.

Improvement of the Western Drainage System will involve the construction of a drainage swale along the mountainside from the intersection of Central Avenue and Hillside Avenue to SBL# 62.82-1-4 (37 West End Avenue) and a new storm sewer from SBL# 62.82-1-4 (37 West End Avenue) to the existing USACE ponding area on the south side of Josephine Avenue. The Western Drainage System will be designed with a filter fabric lined trench and one perforated 30" HDPE pipe to provide positive relief of any potential shallow groundwater levels. Shallow groundwater would drain by gravity through a one-foot thick stone layer under the pipe and the perforated pipe. Proposed Western Drainage System improvements will include the installation of 1,002 LF of 30" diameter HDPE culvert pipe (dual culvert 501 LF) and five catch basins. The proposed mountainside drainage swale crosses through nine private properties. During construction, four trees will be removed from West End Avenue and two trees will be removed on Josephine Avenue, where the proposed drainage system would intersect the roadway. These trees are located in the right-of-way adjacent to residential properties. Temporary construction easements and permanent drainage maintenance easements will have to be obtained. The project engineering design plans are included with this letter for your review.

With this letter, GOSR respectfully submits for your review the attached documentation for the proposed project described herein. GOSR initiated consultation with the New York State Historic Preservation Office and their concurrence indicating that no historic properties will be affected, dated March 16, 2017, is included with this letter for your records. If the Area of Potential Effect encompasses historic properties of religious or cultural significance to your Nation, please respond within 30 days or sooner. Additionally, please indicate if there are other sources of information or other parties, Nations, Tribes, or members of the public you believe should be included in the consultation process. Please respond by email or in writing to the address listed below.

Lori A. Shirley
Director, Bureau of Environmental Review and Assessment, GOSR
New York State Homes & Community Renewal
38-40 State St. 408N, Hampton Plaza
Albany, New York 12207

If you have any questions or require additional information regarding this request, please feel free to contact me at (518) 474-0755 or via email at Lori.Shirley@nyshcr.org. Thank you for your time and consideration.

Sincerely,

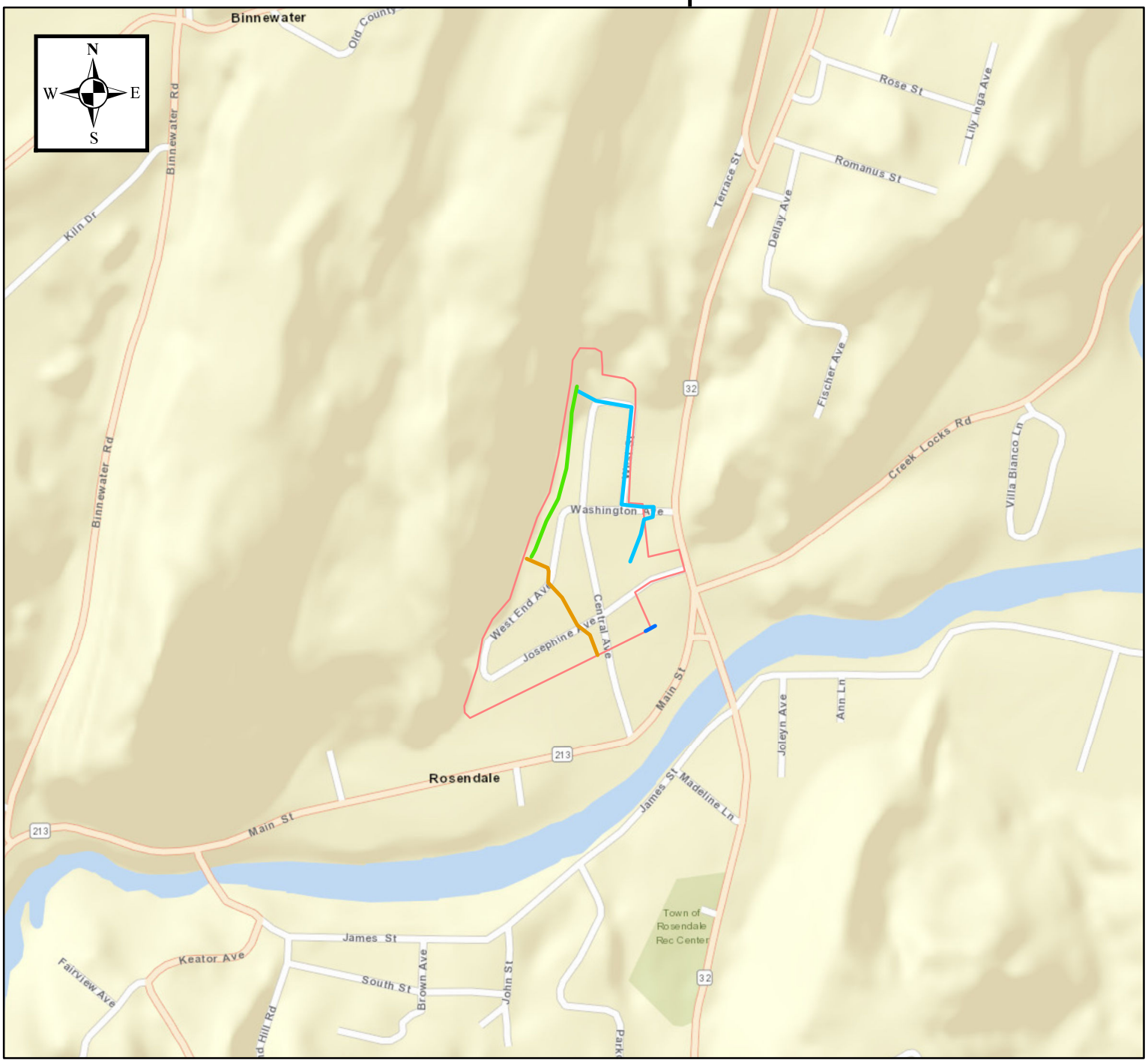
Lori A. Shirley
Director, Bureau of Environmental Review and Assessment, GOSR

Enclosures:
Project Location Maps
Project Engineering Design Plans
NYSHPO No Affect Letter

Attachment 1

Street Map,
Topographic Map,
& Aerial Photograph

Location Map



TECTONIC

Practical Solutions, Exceptional Service

0 500 1,000 2,000 Feet

1:10,000

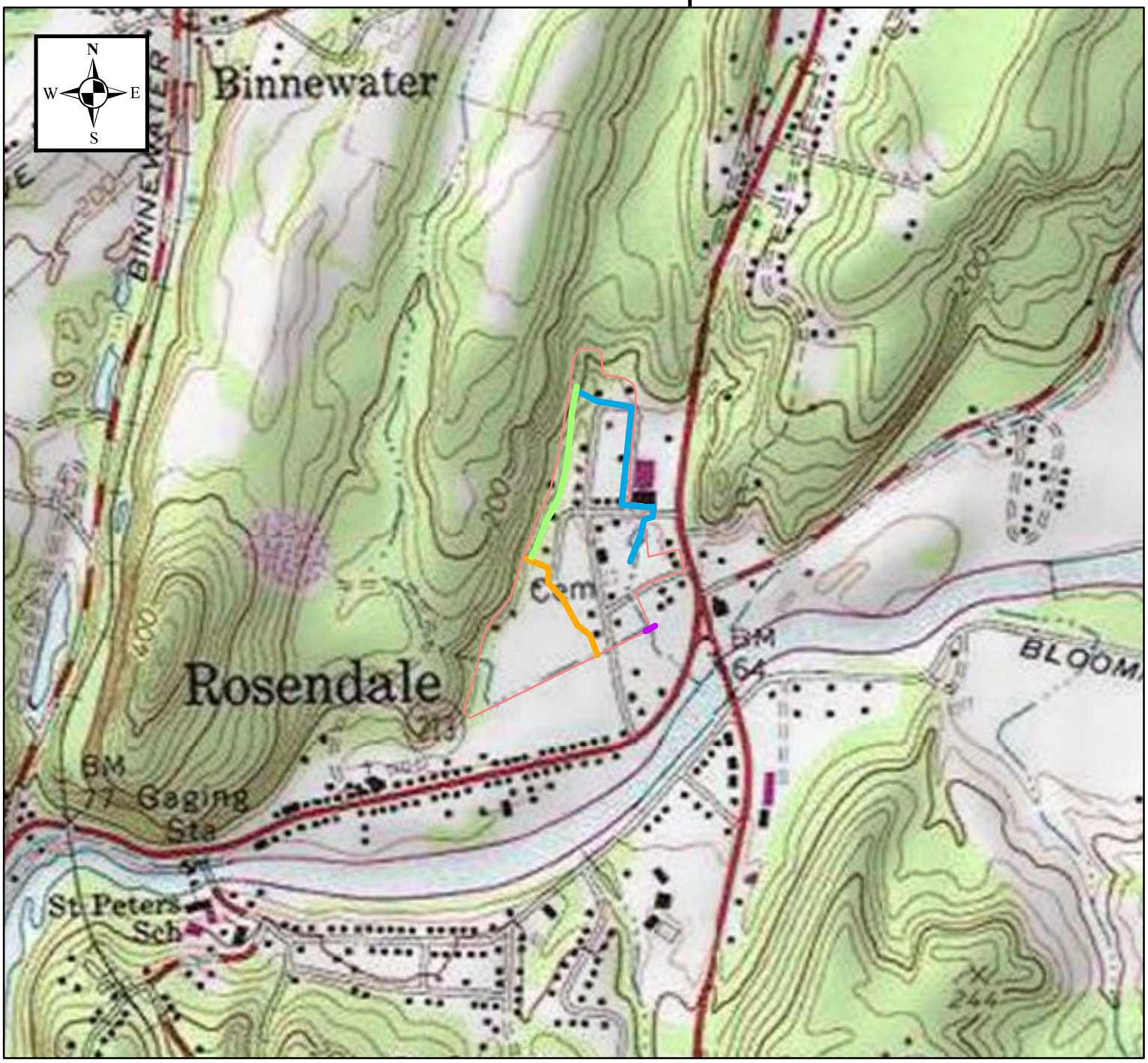
Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

Legend

Approximate Work Locations

- **Eastern Drainage System**
- **Mountain Swale**
- **Western Drainage System**
- **Pedestrian Bridge**
- **Washington Park (Approximate Boundary)**

Location Map



TECTONIC
Practical Solutions, Exceptional Service

0 500 1,000 2,000 Feet

1:10,000

Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

Legend

Approximate Work Locations

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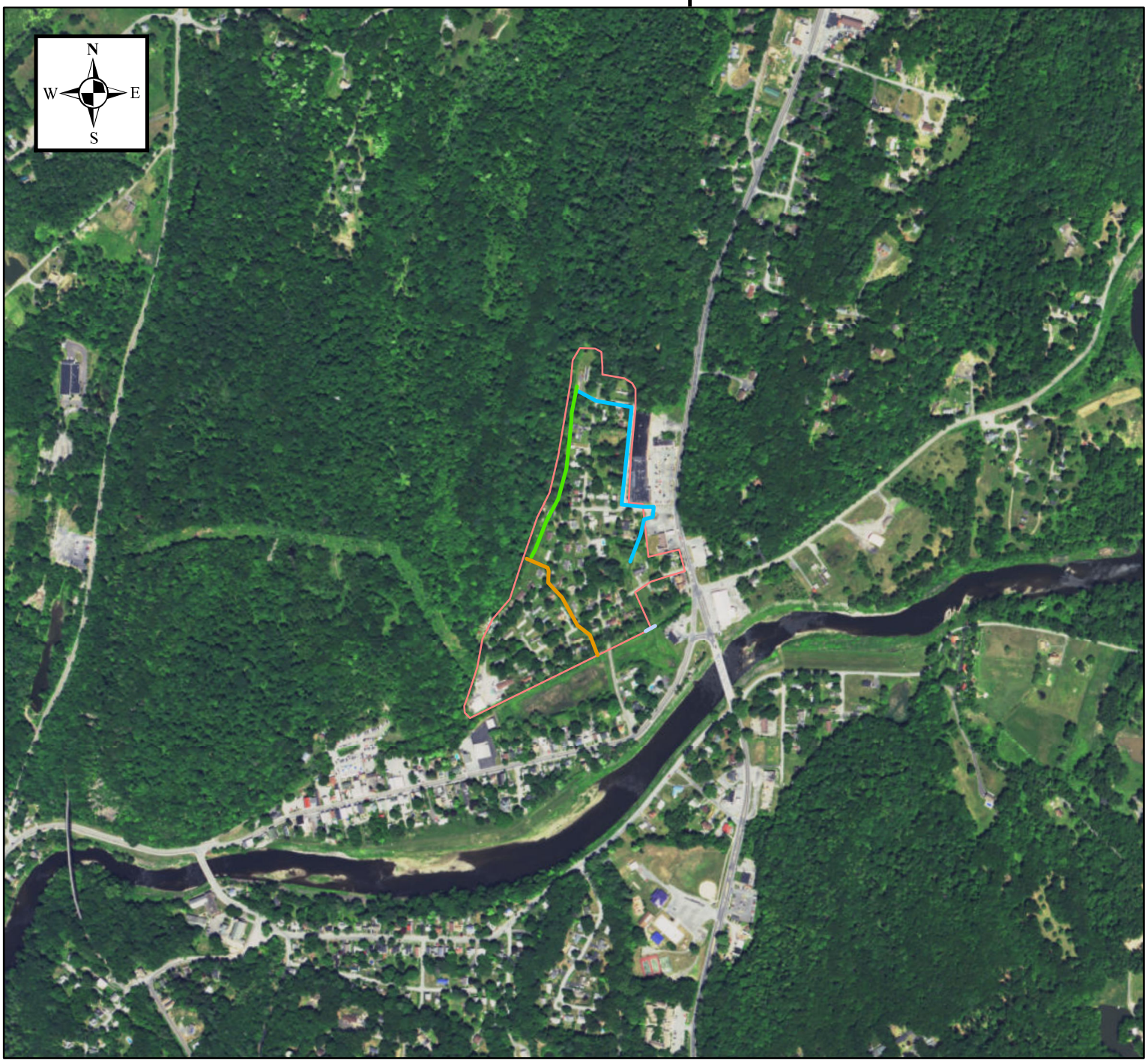
Location Map



TECTONIC
Practical Solutions, Exceptional Service

0 500 1,000 2,000 Feet

1:10,000

Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

Legend

Approximate Work Locations

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- **Mountain Swale**
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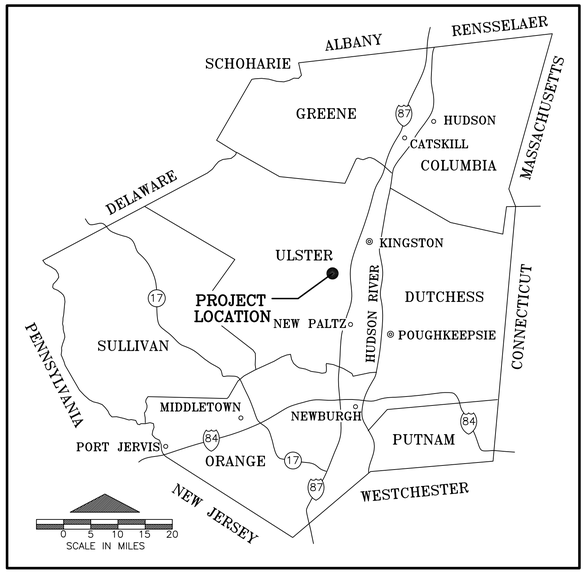
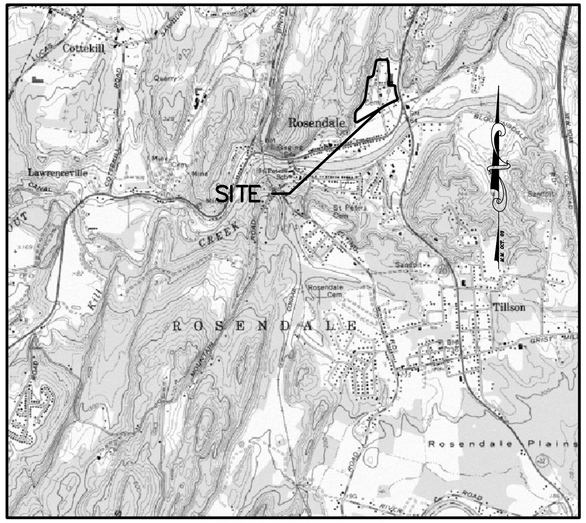
- **Pedestrian Bridge**
- **Washington Park (Approximate Boundary)**



GENERAL LOCATION MAP

AERIAL VIEW



LOCATION MAP
ROSENDALE QUADRANGLE
7.5' MINUTE USGS TOPOGRAPHIC MAP
SCALE: 1" = 2000'

CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION

NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNOR'S OFFICE OF STORM RECOVERY

TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

TOWN OFFICIALS

JEANNE L. WALSH, TOWN SUPERVISOR

TOWN COUNCIL
JOHN P. HUGHES
JENNIFER METZGER
CHRISTOPHER PRYLOPSKI
FRANK KLEPEIS
ROBERT S. GALLAGHER, HIGHWAY SUPERINTENDENT
MANDY CONSTABLE, TOWN CLERK

FEBRUARY 2017

FINAL DESIGN FOR AGENCY REVIEW

SHEET INDEX

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	KEY MAP
3.	EXISTING CONDITIONS 1, EASTERN DRAINAGE SYSTEM
4.	EXISTING CONDITIONS 2, EASTERN DRAINAGE SYSTEM
5.	SELECTIVE DEMOLITION, EASTERN DRAINAGE SYSTEM
6.	PLAN AND PROFILE 1, EASTERN DRAINAGE SYSTEM
7.	PLAN AND PROFILE 2, EASTERN DRAINAGE SYSTEM
8.	EXISTING CONDITIONS, WESTERN DRAINAGE SYSTEM
9.	SELECTIVE DEMOLITION, WESTERN DRAINAGE SYSTEM
10.	PLAN AND PROFILE, WESTERN DRAINAGE SYSTEM
11.	EXISTING CONDITIONS, MOUNTAIN SWALE
12.	GRADING PLAN, MOUNTAIN SWALE
13.	DETAILS
14.	EROSION AND SEDIMENT CONTROL – EAST
15.	EROSION AND SEDIMENT CONTROL – WEST
16.	EROSION AND SEDIMENT CONTROL – MOUNTAIN SWALE

BRINNIER AND LARIOS, P.C.
PROFESSIONAL ENGINEERS AND LAND SURVEYORS
67 MAIDEN LANE
KINGSTON, NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 056741 STATE OF NEW YORK

LICENSED LAND SURVEYOR CHRISTOPHER J. ELLI 49629 STATE OF NEW YORK

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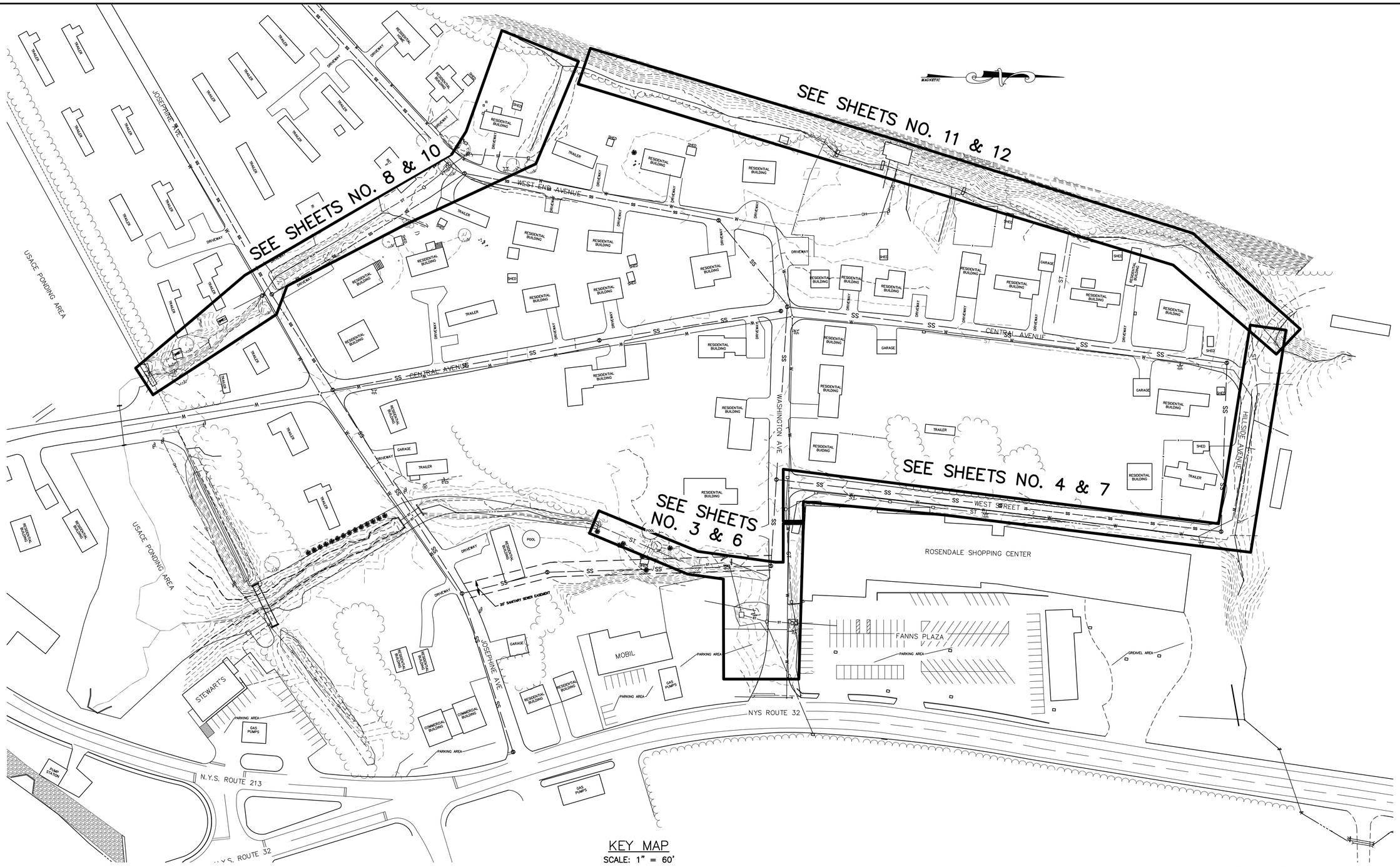
811 Know what's below. Call before you dig.



KEY MAP
SCALE: 1" = 60'

KEY MAP
CONTRACT NO. TR-171

NOTE:
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GRAPHIC SCALE IN FEET
60 0 60

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49629
STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER
BENJAMIN M. LARIOS
058747
STATE OF NEW YORK

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WASHINGTON PARK STORMWATER MITIGATION

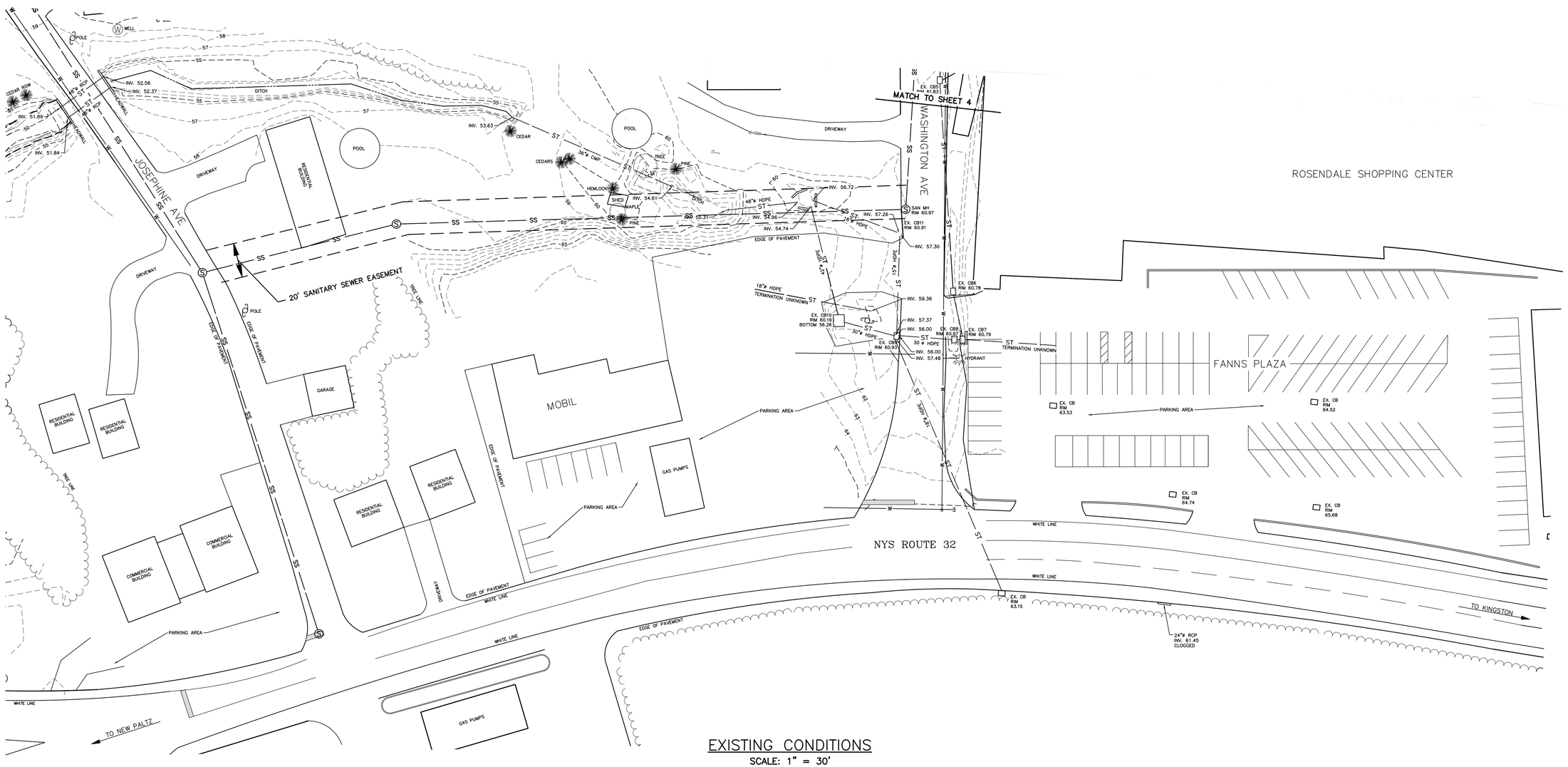
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY

TOWN OF ROSENDALE | ULSTER COUNTY | NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 60'	FEB. 2017		2 OF 16
	DWG RJS	CHK JEM	



EXISTING CONDITIONS

SCALE: 1" = 30'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
X	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:

1. FIELD SURVEY PERFORMED BY BRINNIER AND LARIOS, P.C. ON JUNE 15, 2016, AUGUST 29, 2016 AND NOVEMBER 23, 2016.
2. USACE PONDING AREA BOUNDARY FROM USACE ROSENDALE FLOOD CONTROL PROJECT DRAWING NUMBER CC-RC-209, SHEET 9 OF 79

NOTE:

The location of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the contractor's failure to exactly locate and preserve any and all underground utilities.

GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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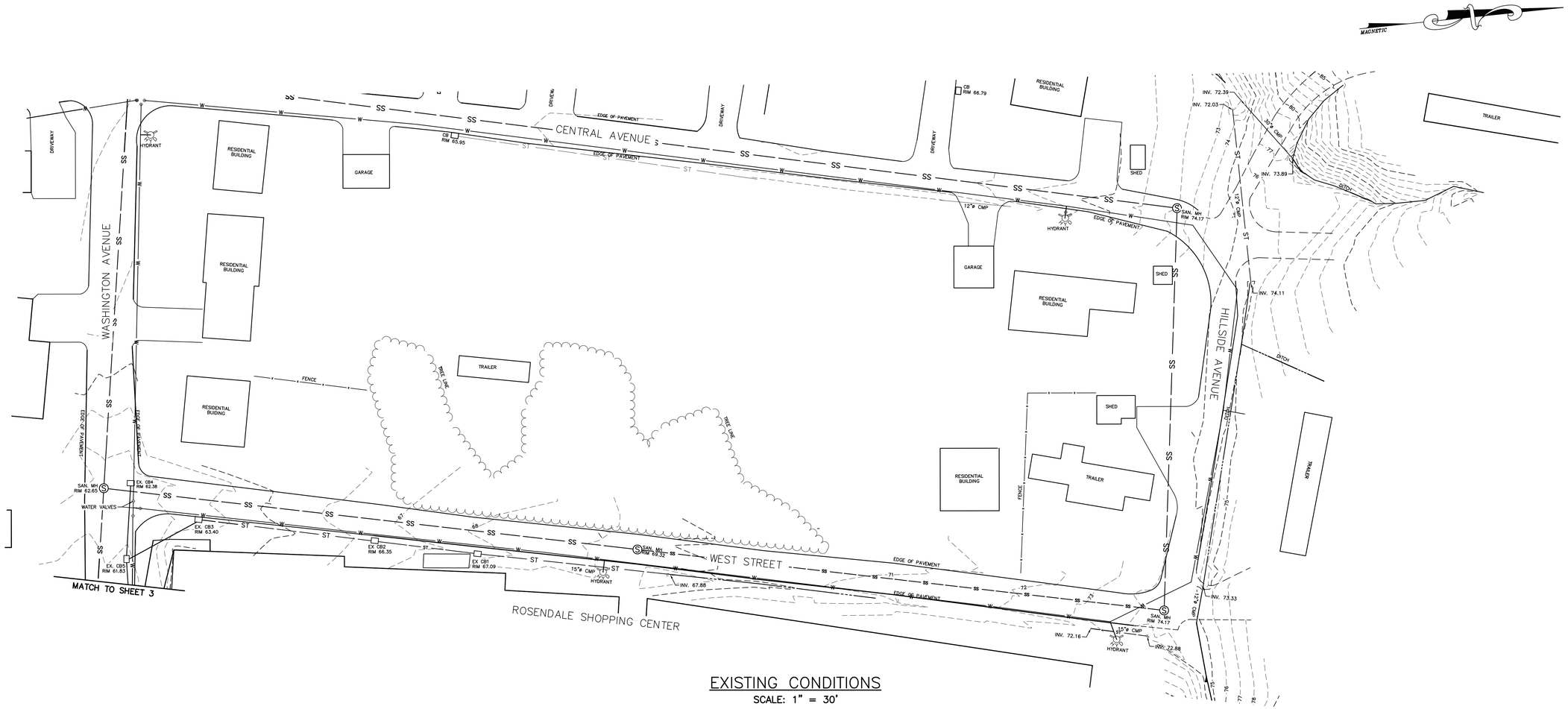
EXISTING CONDITIONS 1
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		3 OF 16
	DWG RJS	CHK JEM	



EXISTING CONDITIONS

SCALE: 1" = 30'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
℄	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:

1. FIELD SURVEY PERFORMED BY BRINNIER AND LARIOS, P.C. ON JUNE 15, 2016, AUGUST 29, 2016 AND NOVEMBER 23, 2016.
2. USACE PONDING AREA BOUNDARY FROM USACE ROSENDALE FLOOD CONTROL PROJECT DRAWING NUMBER CC-RC-209, SHEET 9 OF 79

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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIG M. LARIOS 058747 STATE OF NEW YORK

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EXISTING CONDITIONS 2
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TS-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

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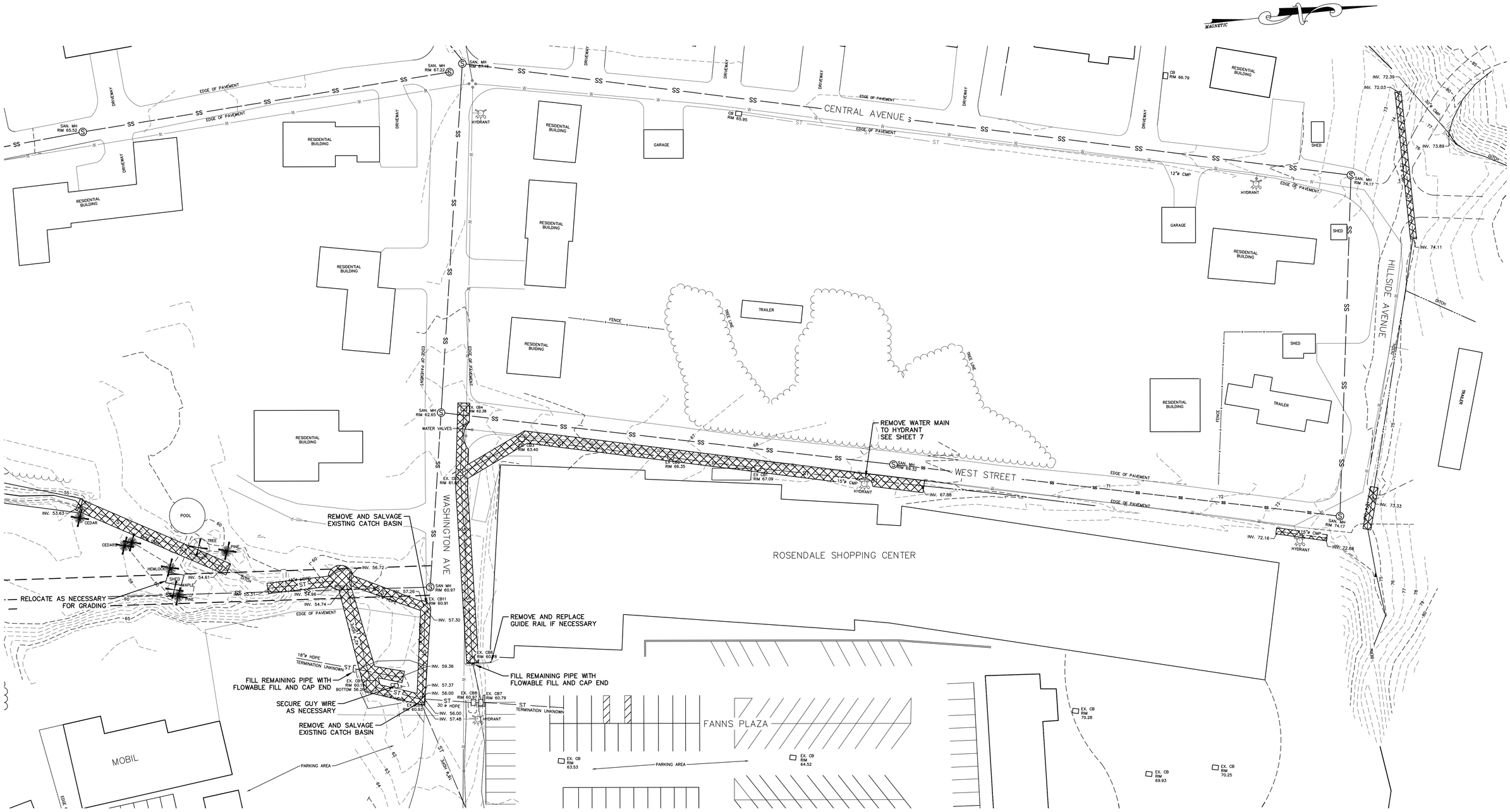
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		4 OF 16
	DWG RJS	CHK JEM	



SELECTIVE DEMOLITION PLAN

SCALE: 1" = 30'

SELECTIVE DEMOLITION PLAN
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TS-171

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	PROPOSED DEMOLITION
	PROPOSED TREE REMOVAL

NOTE:
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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER BENNO M. LARIOS 058741 STATE OF NEW YORK

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WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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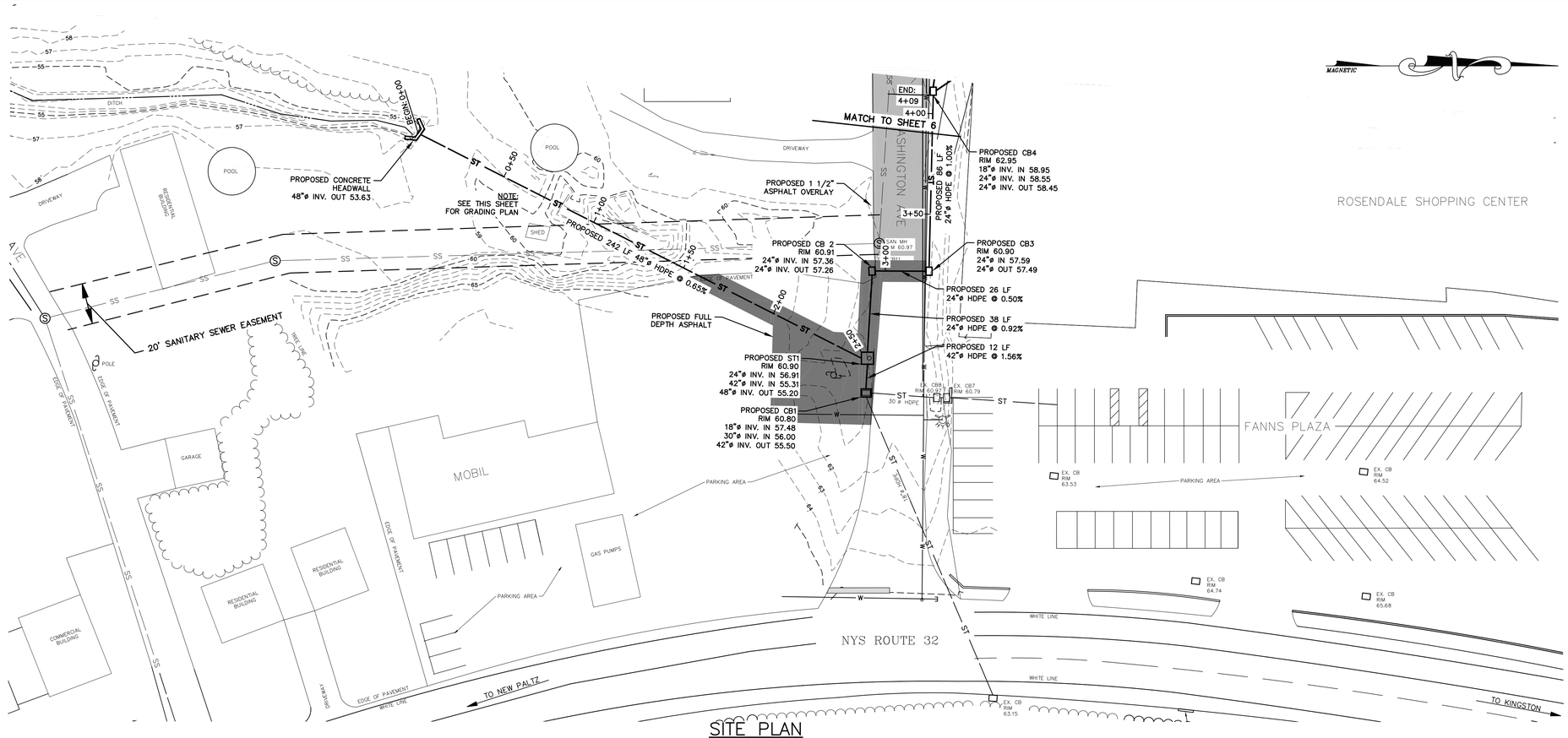
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

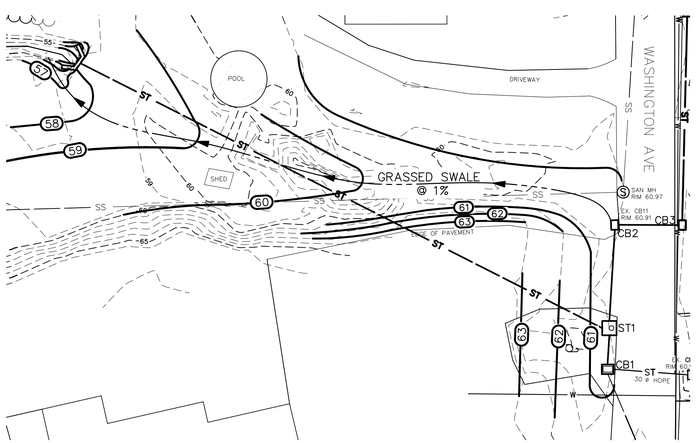
SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		5 OF 16
	DWG RJS	CHK JEM	

DRAINAGE STRUCTURE SCHEDULE					
STRUCTURE	TYPE (ID DIMENSIONS)	RIM ELEV. (FT)	INSIDE HEIGHT (FT)	STORM PIPING	INVERT ELEV. (FT)
ST1	6'x5' MANHOLE W 24" COVER	60.90	6 +/-	24"Ø HDPE IN	56.91
				42"Ø HDPE IN	55.31
				48"Ø HDPE OUT	55.20
CB1	4'x5' CATCH BASIN W F&G	60.80	6 +/-	18"Ø HDPE IN	57.48
				30"Ø HDPE IN	56.00
				42"Ø HDPE OUT	55.50
CB2	4'x4' CATCH BASIN W F&G	60.91	4 +/-	24"Ø HDPE IN	57.36
				24"Ø HDPE OUT	57.26
CB3	4'x4' CATCH BASIN W F&G	60.90	4 +/-	24"Ø HDPE IN	57.59
				24"Ø HDPE OUT	57.49
CB4	4'x4' CATCH BASIN W F&G	62.95	5 +/-	18"Ø HDPE IN	58.95
				24"Ø HDPE IN	58.55
				24"Ø HDPE OUT	58.45

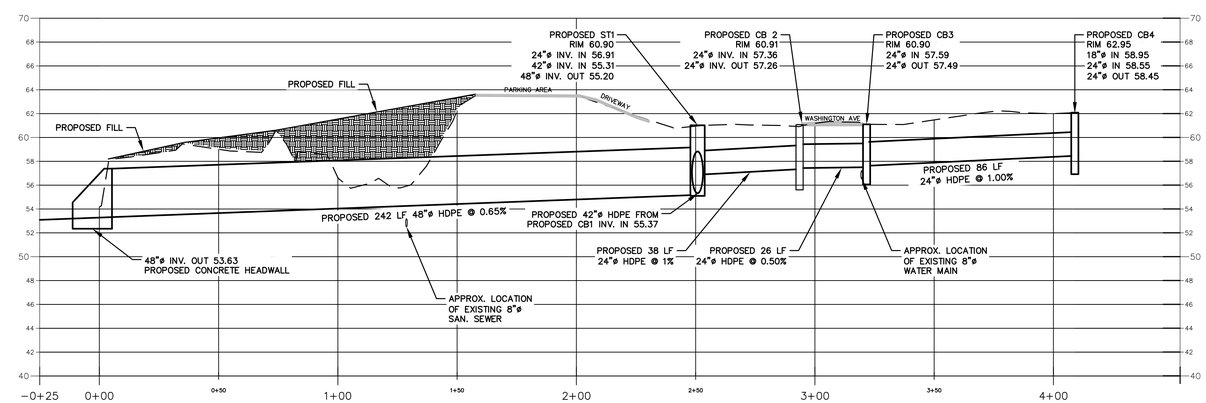
NOTES:
1. SEE PLAN AND PROFILE DRAWINGS FOR ORIENTATION OF PIPES.
2. ALL 4' CB STRUCTURES SHALL HAVE 30" X 48" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #7585 F&G ASSEMBLY OR APPROVED EQUAL.
3. ALL 3' CB STRUCTURES SHALL HAVE 24" X 24" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #5423 F&G ASSEMBLY OR APPROVED EQUAL.



SITE PLAN
SCALE: 1" = 30'



GRADING PLAN
SCALE: 1" = 30'



PROFILE OF STORM SEWER
SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

PLAN AND PROFILE 1
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

NOTE:
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LEGEND

50	CONTOURS (MINOR)		UTILITY POLE	ST	PROPOSED STORM SEWER
52	CONTOURS (MAJOR)		EXISTING HYDRANT		PROPOSED CATCH BASIN
PL	PROPERTY LINE	EX. CB1	EXISTING CATCH BASIN	58	PROPOSED CONTOUR
SS	EXISTING SANITARY SEWER	S	SANITARY MANHOLE		PROPOSED FULL DEPTH ASPHALT PAVEMENT
ST	EXISTING STORM SEWER	M	MANHOLE		PROPOSED 1 1/2" ASPHALT OVERLAY
W	EXISTING WATER LINE				
	DITCH				
	APPROX. TREE LINE				
x	FENCE				

GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER V. FELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER BERNIE M. LARIOS 058747 STATE OF NEW YORK

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WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY

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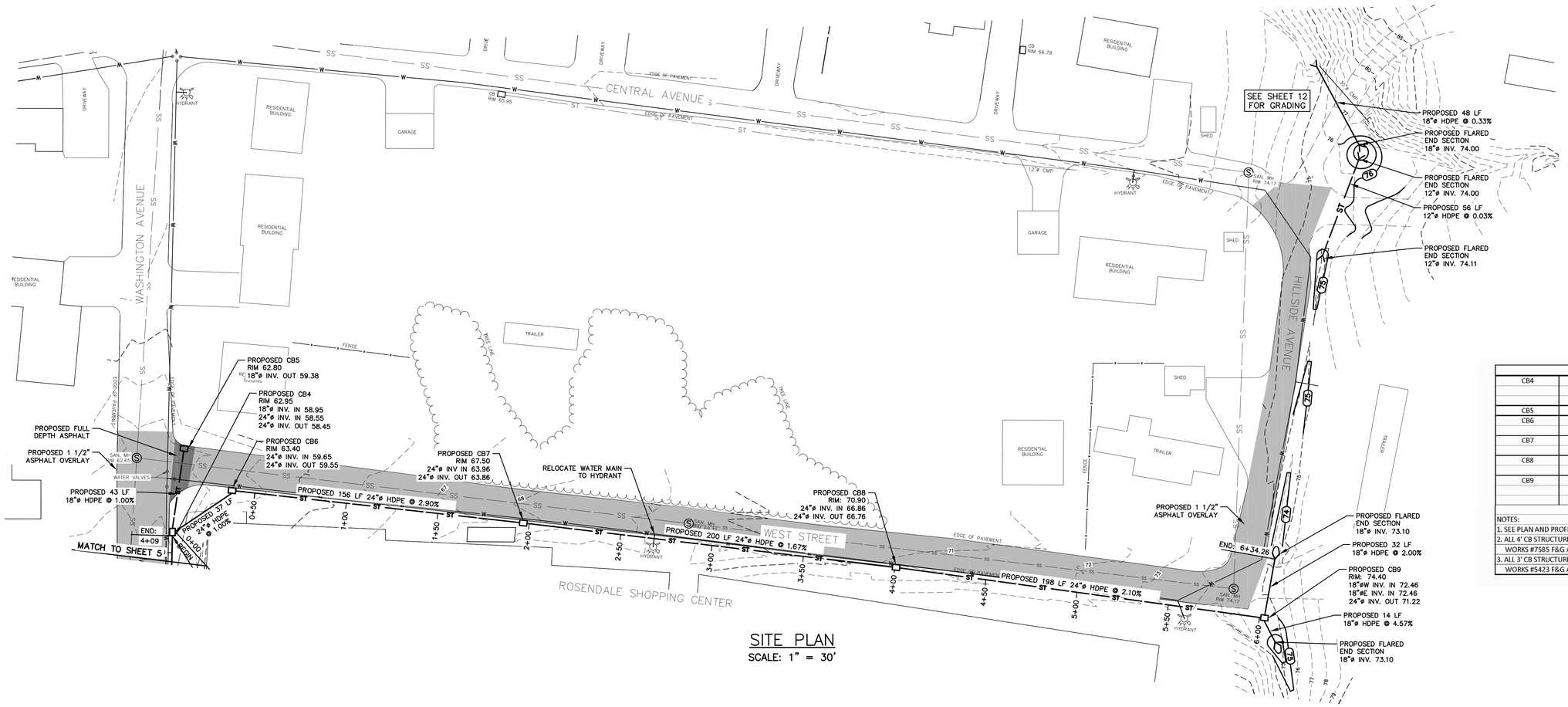
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		6 OF 16
	DWG. RJS	CHK. JEM	

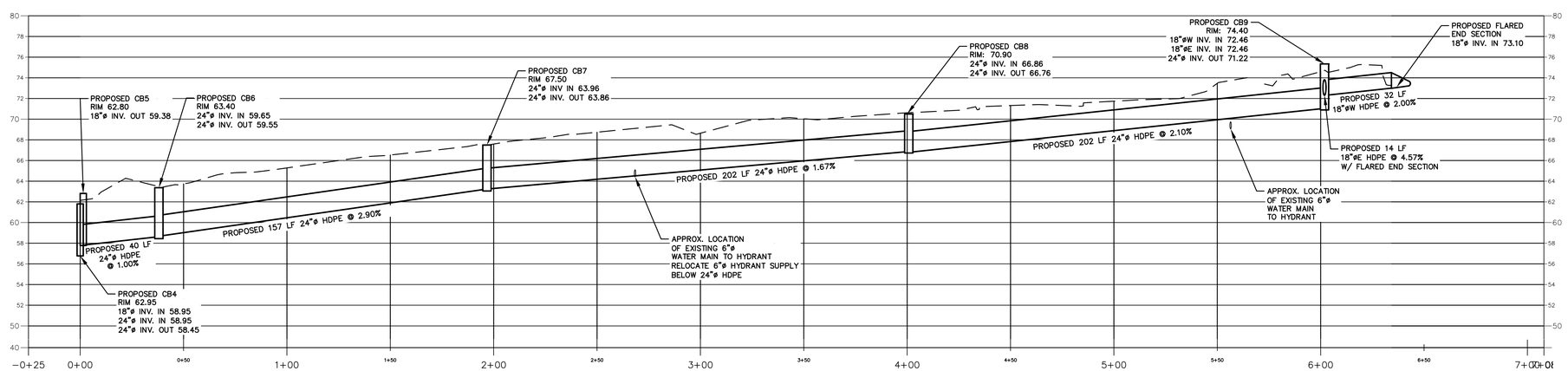


SITE PLAN

SCALE: 1" = 30'

DRAINAGE STRUCTURE SCHEDULE					
CB4	4'x4' CATCH BASIN W F&G	62.95	5 +/-	18"Ø HDPE IN	58.95
				24"Ø HDPE IN	58.55
				24"Ø HDPE OUT	58.45
CB5	3'X3' CATCH BASIN W F&G	62.80	4 +/-	24"Ø HDPE OUT	59.38
CB6	4'x4' CATCH BASIN W F&G	63.40	4 +/-	24"Ø HDPE IN	59.65
				24"Ø HDPE OUT	59.55
CB7	4'x4' CATCH BASIN W F&G	67.50	4 +/-	24"Ø HDPE IN	63.96
				24"Ø HDPE OUT	63.86
CB8	4'x4' CATCH BASIN W F&G	70.90	5 +/-	24"Ø HDPE IN	66.86
				24"Ø HDPE OUT	66.76
CB9	4'x4' CATCH BASIN W F&G	74.40	4 +/-	18"Ø HDPE IN	72.46
				18"Ø HDPE IN	72.46
				24"Ø HDPE OUT	71.22

NOTES:
1. SEE PLAN AND PROFILE DRAWINGS FOR ORIENTATION OF PIPES.
2. ALL 4' CB STRUCTURES SHALL HAVE 30" X 48" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #7585 F&G ASSEMBLY OR APPROVED EQUAL.
3. ALL 3' CB STRUCTURES SHALL HAVE 24" X 24" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #5423 F&G ASSEMBLY OR APPROVED EQUAL.



PROFILE OF STORM SEWER

SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR
- PROPOSED FULL DEPTH ASPHALT PAVEMENT
- PROPOSED 1 1/2" ASPHALT OVERLAY

GRAPHIC SCALE IN FEET
30 0 30

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PLAN AND PROFILE 2
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		7 OF 16
	DWG RJS	CHK JEM	

EXISTING CONDITIONS

SCALE: 1" = 30'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:

1. FIELD SURVEY PERFORMED BY BRINNIER AND LARIOS, P.C. ON JUNE 15, 2016, AUGUST 29, 2016 AND NOVEMBER 23, 2016.
2. USACE PONDING AREA BOUNDARY FROM USACE ROSENDALE FLOOD CONTROL PROJECT DRAWING NUMBER CC-RC-209, SHEET 9 OF 79

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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER SERVIS M. LARIOS 058747 STATE OF NEW YORK

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EXISTING CONDITIONS
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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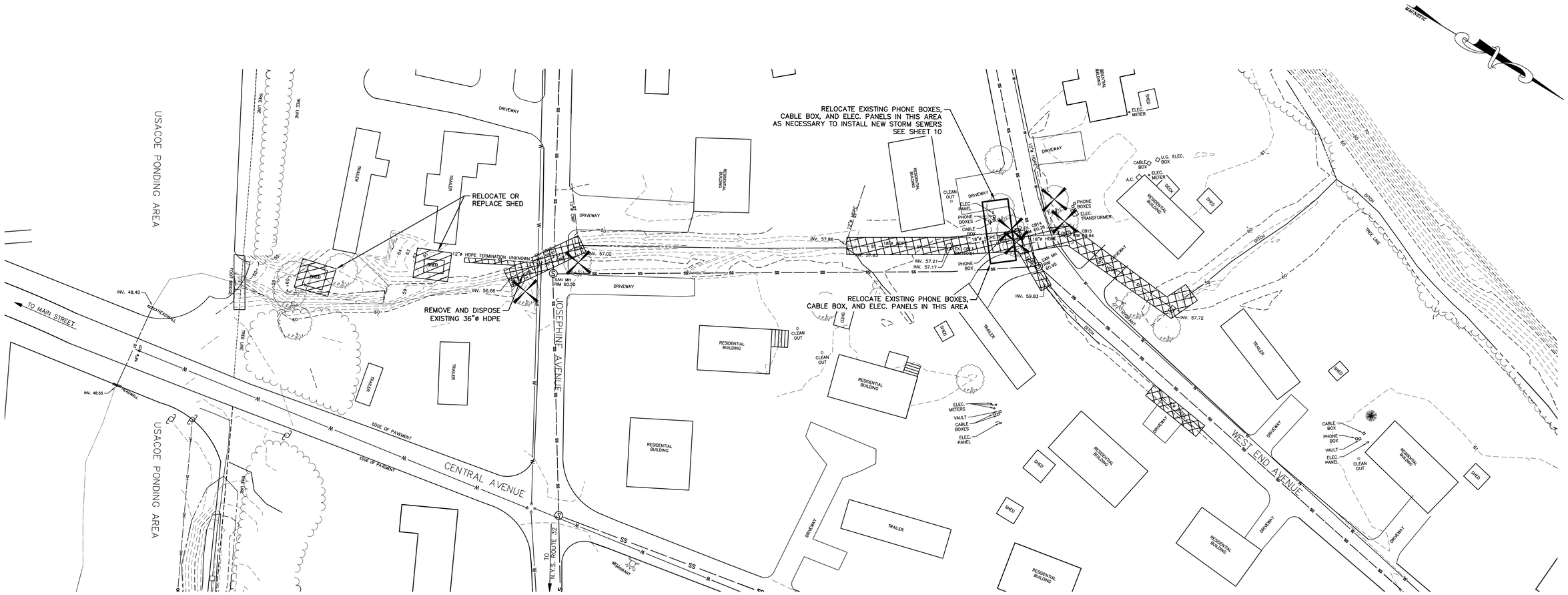
SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		8 OF 16
	DWG RJS	CHK JEM	



SELECTIVE DEMOLITION PLAN

SCALE: 1" = 30'

LEGEND

CONTOURS (MINOR)	UTILITY POLE
CONTOURS (MAJOR)	EXISTING HYDRANT
PROPERTY LINE	EXISTING CATCH BASIN
EXISTING SANITARY SEWER	SANITARY MANHOLE
EXISTING STORM SEWER	MANHOLE
EXISTING WATER LINE	PROPOSED DEMOLITION
DITCH	PROPOSED TREE REMOVAL
APPROX. TREE LINE	
FENCE	

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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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SELECTIVE DEMOLITION PLAN
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

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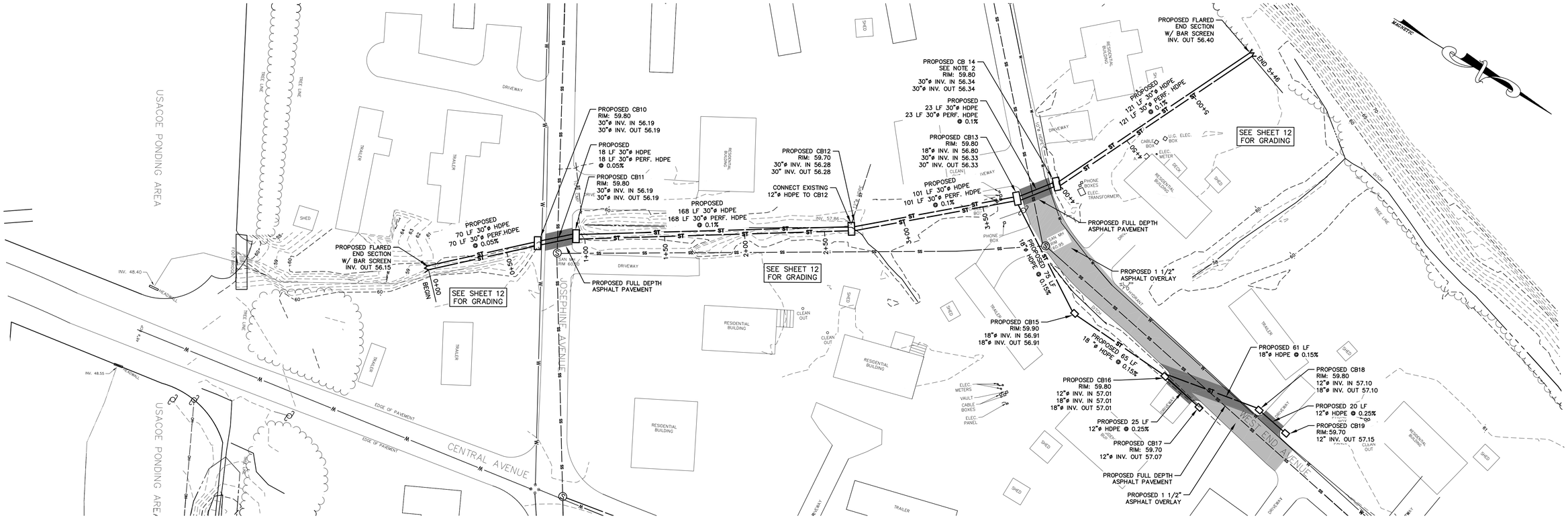
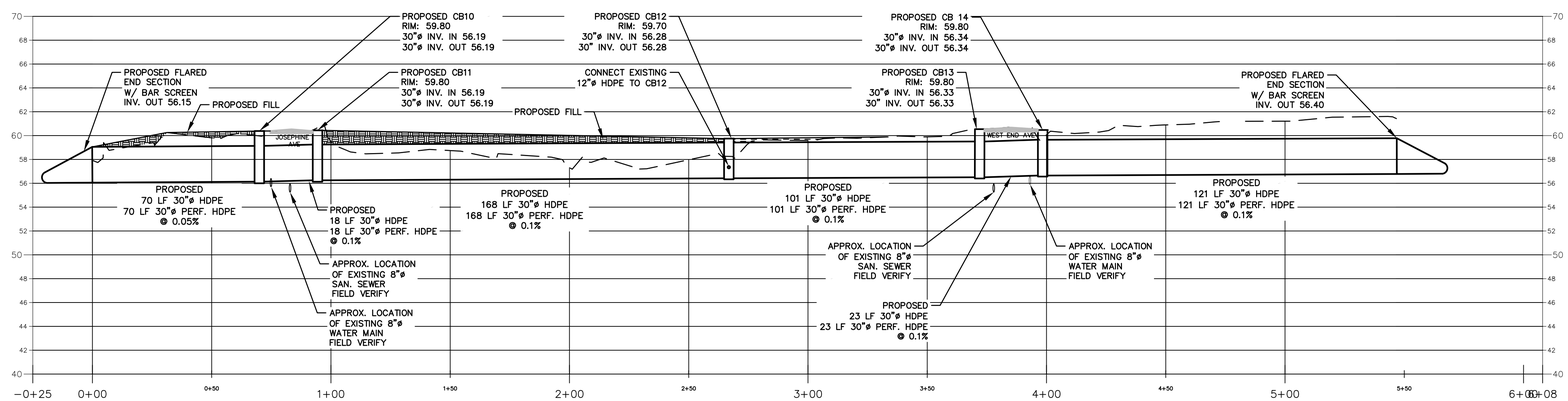


SITE PLAN

SCALE: 1" = 30'

DRAINAGE STRUCTURE SCHEDULE					
CB9	4'x4' CATCH BASIN W F&G	74.40	4 +/-	18"Ø HDPE IN	72.46
				18"Ø HDPE IN	72.46
				24"Ø HDPE OUT	71.22
CB10	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.19
CB11	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.19
CB12	4'X8' CATCH BASIN W F&G	59.80	4	12" HDPE IN	57.86
				2 - 30"Ø HDPE	56.28
CB13	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.33
CB14	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.34
CB15	3'X3' CATCH BASIN W F&G	59.90	4 +/-	18"Ø HDPE	56.91
CB16	4'X4' CATCH BASIN W F&G	59.80	3 +/-	18"Ø HDPE IN	57.01
				12"Ø HDPE IN	57.01
				18"Ø HDPE OUT	57.01
CB17	3'X3' CATCH BASIN W F&G	59.70	3 +/-	12"Ø HDPE OUT	57.05
CB18	3'X3' CATCH BASIN W F&G	59.80	3 +/-	12"Ø HDPE IN	57.10
				18"Ø HDPE OUT	57.10
CB19	3'X3' CATCH BASIN W F&G	59.70	3 +/-	12"Ø HDPE OUT	57.13

NOTES:
1. SEE PLAN AND PROFILE DRAWINGS FOR ORIENTATION OF PIPES.
2. ALL 4' CB STRUCTURES SHALL HAVE 30" X 48" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #7585 F&G ASSEMBLY OR APPROVED EQUAL.
3. ALL 3' CB STRUCTURES SHALL HAVE 24" X 24" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #5423 F&G ASSEMBLY OR APPROVED EQUAL.



PROFILE OF STORM SEWER

SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

LEGEND

50	CONTOURS (MINOR)		UTILITY POLE	ST	PROPOSED STORM SEWER
52	CONTOURS (MAJOR)		EXISTING HYDRANT		PROPOSED CATCH BASIN
PL	PROPERTY LINE	EX. CB1	EXISTING CATCH BASIN	50	PROPOSED CONTOUR
SS	EXISTING SANITARY SEWER	S	SANITARY MANHOLE		PROPOSED FULL DEPTH ASPHALT PAVEMENT
ST	EXISTING STORM SEWER	M	MANHOLE		PROPOSED 1 1/2" ASPHALT OVERLAY
W	EXISTING WATER LINE				
	DITCH				
	APPROX. TREE LINE				
X	FENCE				

NOTE:
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NOTE:
1. FIELD VERIFY TOP OF PIPE ELEVATIONS AT EACH SANITARY CROSSING PRIOR TO INSTALLING ANY STORM SEWER PIPING.
2. CB14 SHALL HAVE AN 8"HIGH X 12"LONG OPENING ON THE SOUTH SIDEWALL AT ELEV. 58.25 FEET.

GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. FELL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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PLAN AND PROFILE
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
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NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		10 OF 16
	DWG RJS	CHK JEM	

EXISTING CONDITIONS

SCALE: 1" = 40'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
℄	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:
The location of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the contractor's failure to exactly locate and preserve any and all underground utilities.

GRAPHIC SCALE IN FEET

40 0 40

LICENSED LAND SURVEYOR — CHRISTOPHER J. TELL — 49679 — STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER — DENNIS M. LARIOS — 058741 — STATE OF NEW YORK

Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

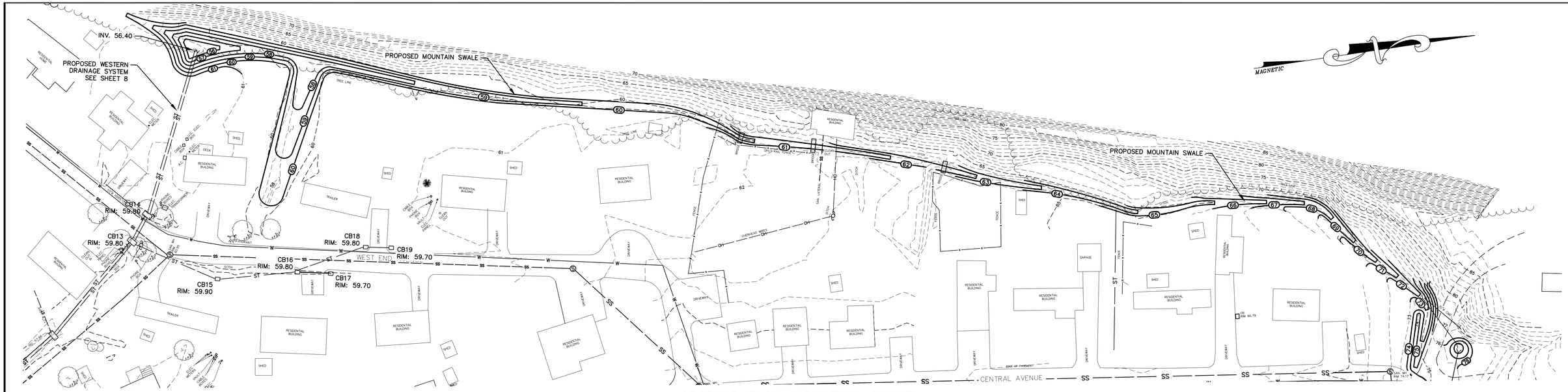
EXISTING CONDITIONS
MOUNTAIN SWALE
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE — ULSTER COUNTY — NEW YORK

DATE	REVISION RECORD

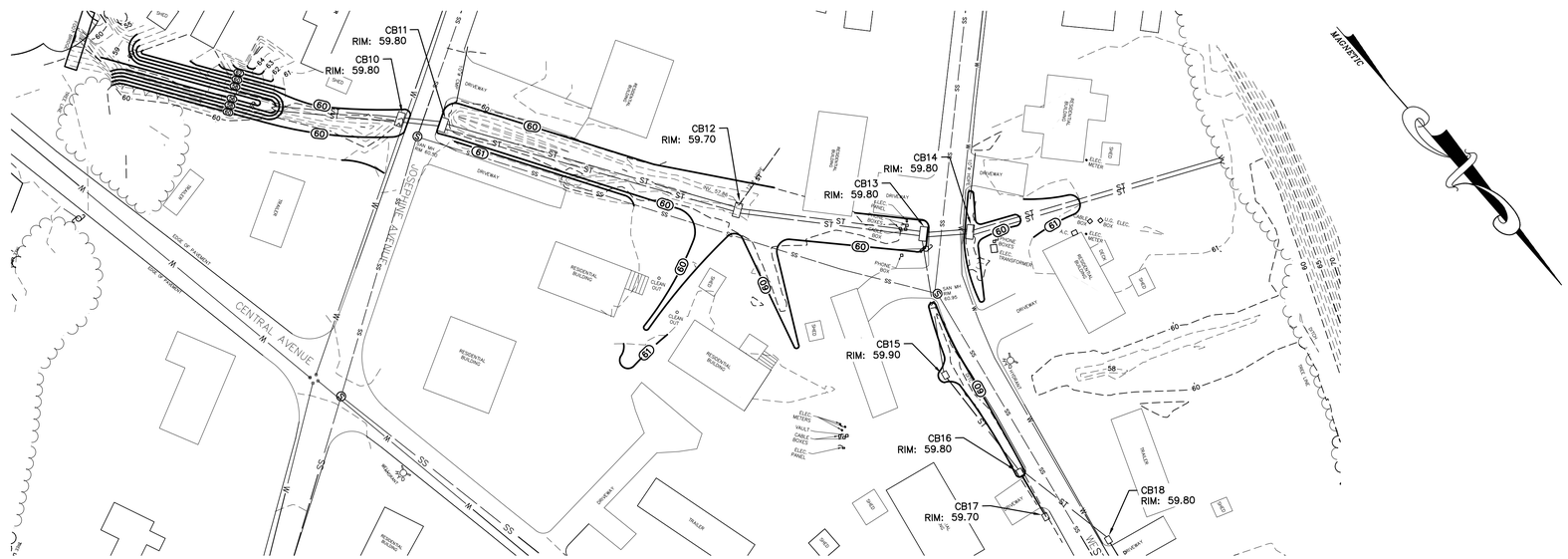
BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE — KINGSTON, N.Y.
Phone: 845-338-7622 — Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 40'	FEB. 2017		11 OF 16
	DWG RJS	CHK JEM	



GRADING PLAN MOUNTAIN SWALE

SCALE: 1" = 40'



GRADING PLAN WESTERN DRAINAGE SYSTEM

SCALE: 1" = 40'

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR

NOTE:
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GRAPHIC SCALE IN FEET

40 0 40

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIE M. LARIOS 058747 STATE OF NEW YORK

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GRADING PLAN
WEST AND MOUNTAIN SWALE
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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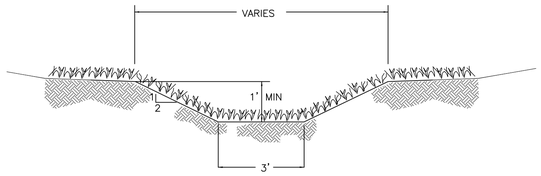
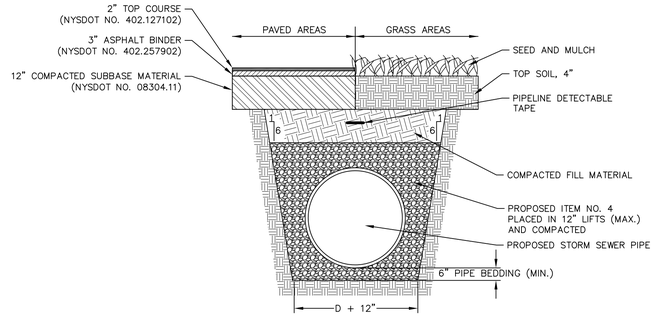
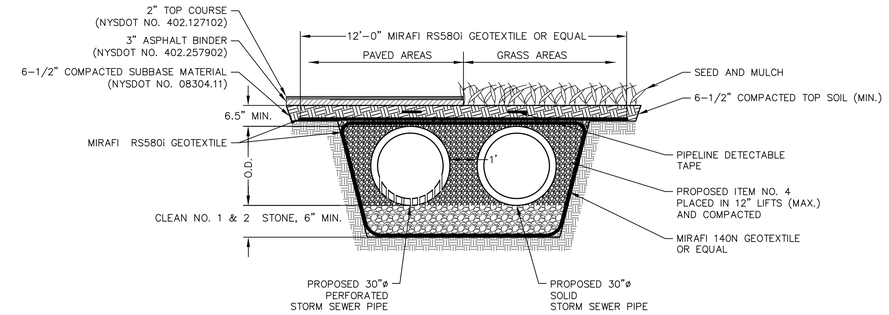


VEGETATION REQUIREMENTS FOR OPEN CHANNELS
SEED MIXTURE SHALL BE TALL FESCUE OR SMOOTH BROMEGRASS (0.45 LBS/1000 SF), KENTUCKY BLUEGRASS (0.6 LBS/1000 SF) OR PERENNIAL RYEGRASS (0.2 LBS/1000 SF). MULCH SEEDED AREAS. FERTILIZE, LIME AND MOW AS NEEDED TO MAINTAIN DENSE PROTECTIVE COVER.

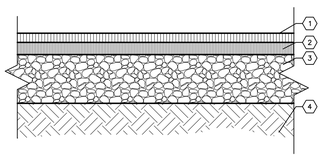
TYPICAL MOUNTAINSIDE SWALE SECTION
NOT TO SCALE



TYPICAL STORM SEWER TRENCH DETAIL
NOT TO SCALE



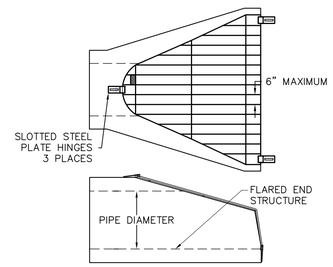
STORM SEWER TRENCH DETAIL
WESTERN DRAINAGE SYSTEM
NOT TO SCALE



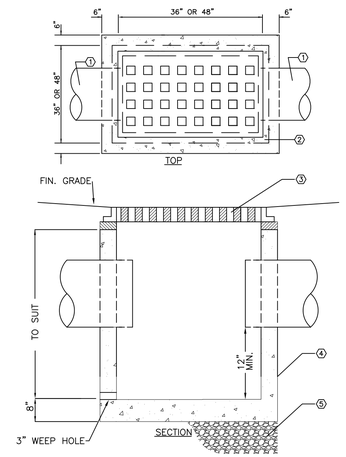
KEYED NOTES

1. 2" TYPE 6F2 ASPHALT WEARING SURFACE OVER TACK COAT. (NYSDOT #403.178202
2. 3" TYPE 3 BINDER OVER PRIME COAT. (NYSDOT #403.138902 M)
3. 12" (MIN.) COMPACTED ITEM #4 BASE MATERIAL. (NYSDOT #304.11 M)
4. WELL-DRAINED SUB-GRADE (COMPACT SUB-GRADE TO 95% MODIFIED PROCTOR),

TYPICAL PAVEMENT SECTION
NOT TO SCALE



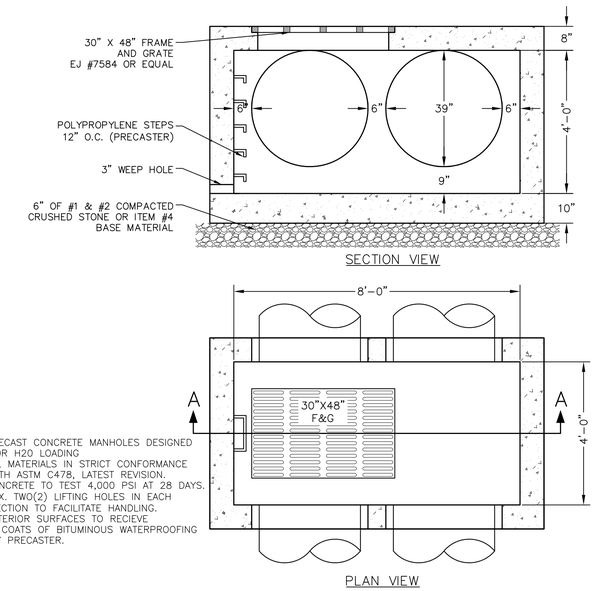
TYPICAL TRASH GUARD
FLARED END
NOT TO SCALE



KEYED NOTES

1. SEE SITE UTILITY PLAN FOR PIPE SIZES AND INVERTS.
2. PRECAST CONCRETE CATCH BASIN, 4,000 PSI CONCRETE, DESIGN FOR AASHTO H20 LOADING
3. HEAVY DUTY FRAME AND GRATE (AASHTO H20 LOADING),
   3'X3' CB – 24"X24" F&G. EJ#5423 OR EQUAL
   4'X4' CB – 30"X48" F&G. EJ#7584 OR EQUAL
   4'X5' CB – 30"X48" F&G. EJ#7584 OR EQUAL
4. EXTERIOR SURFACES TO RECEIVE 2 COATS OF BITUMINOUS WATERPROOFING BY PRECASTER
5. 6" OF #1 & #2 COMPACTED CRUSHED STONE OR ITEM #4 BASE MATERIAL

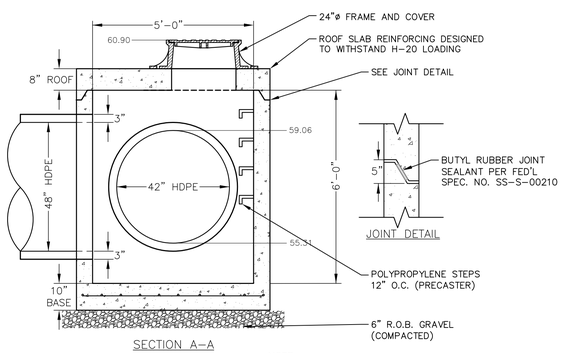
TYPICAL CATCH BASIN DETAIL
NOT TO SCALE



NOTES

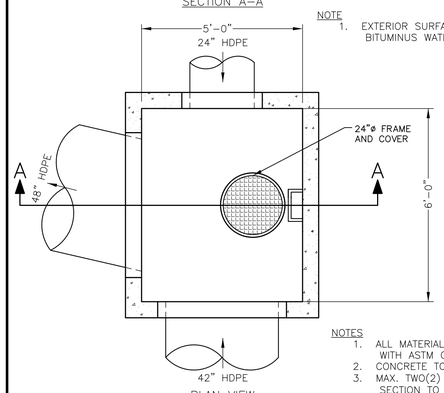
1. PRECAST CONCRETE MANHOLES DESIGNED FOR H20 LOADING
2. ALL MATERIALS IN STRICT CONFORMANCE WITH ASTM C478, LATEST REVISION.
3. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
4. MAX. TWO(2) LIFTING HOLES IN EACH SECTION TO FACILITATE HANDLING.
5. EXTERIOR SURFACES TO RECIEVE 2 COATS OF BITUMINOUS WATERPROOFING BY PRECASTER.

CATCH BASIN CB10–CB14 DETAIL
NOT TO SCALE



NOTE

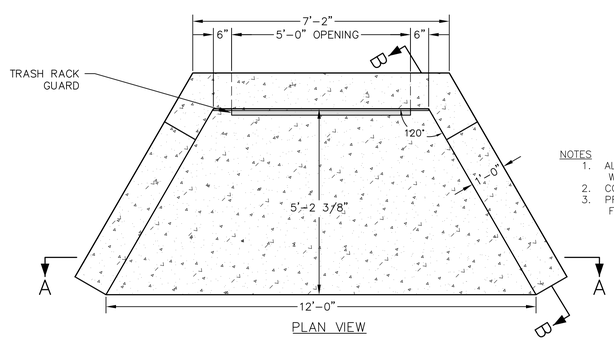
1. EXTERIOR SURFACES TO RECEIVE 2 COATS OF BITUMINUS WATERPROOFING BY PRECASTER.



NOTES

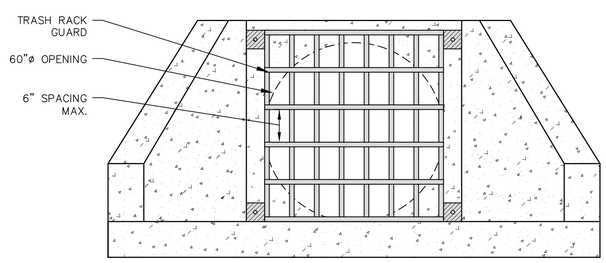
1. ALL MATERIALS IN STRICT CONFORMANCE WITH ASTM C478, LATEST REVISION.
2. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
3. MAX. TWO(2) LIFTING HOLES IN EACH SECTION TO FACILITATE HANDLING.

STORM SEWER ST1 MANHOLE
NOT TO SCALE

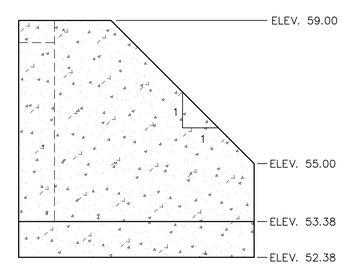


NOTES

1. ALL MATERIALS IN STRICT CONFORMANCE WITH ASTM C478, LATEST REVISION.
2. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
3. PROVIDE LIFTING HOLES AS APPROPRIATE TO FACILITATE HANDLING AND PLACEMENT



SECTION A–A



SECTION B–B

PRECAST 48"ø PIPE HEADWALL, WING WALLS, APRON AND TRASH RACK
NOT TO SCALE

LICENSED LAND SURVEYOR — CHRISTOPHER J. HILL — 49679 — STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER — DENNIS M. LARIOS — 058747 — STATE OF NEW YORK

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DETAILS
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE — ULSTER COUNTY — NEW YORK

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SCALE	DATE		SHEET NO.
N.T.S.	FEB. 2017		13 OF 16
	DWG RJS	CHK JEM	

EROSION & SEDIMENT CONTROL NOTES:

ALL CONSTRUCTION ACTIVITIES INVOLVING THE REMOVAL OR DEPOSITION OF SOILS ARE TO BE PROVIDED WITH APPROPRIATE PROTECTIVE MEASURES TO MINIMIZE EROSION OF, AND CONTAIN SEDIMENT WITHIN, THE AREA UNDER DEVELOPMENT. THOSE METHODS DEEMED MOST EFFECTIVE ARE DESCRIBED BELOW.

1. FOLLOW THE CONSTRUCTION SCHEDULE OUTLINED ON THIS SHEET.
2. CLEAR ONLY WHAT IS REQUIRED FOR THE IMMEDIATE CONSTRUCTION ACTIVITY. CLEARING AND GRADING SHOULD BE DONE AS CONSTRUCTION PROGRESSES. ONLY THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME DURING CONSTRUCTION.
3. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE.
4. PRIOR TO THE START OF CONSTRUCTION, TEMPORARY SILT FENCING AND/OR OTHER APPROVED DEVICES SHALL BE INSTALLED WHERE DEEMED NECESSARY TO PREVENT SOIL MIGRATION INTO WATER COURSES, WETLANDS, STORM DRAINAGE SYSTEMS, AND OFF SITE. SEE SILTATION CONTROL NOTES FOR INSTALLATION AND MAINTENANCE OF SILT FENCING.
5. WHENEVER POSSIBLE, SITE CONSTRUCTION ACTIVITIES SHALL START AT THE NEAREST POINT UPSLOPE OF THE EROSION CONTROL DEVICE, AND PROCEED TO ACTIVITIES FURTHER UPSLOPE.
6. SILT FENCING/TRAPS SHALL BE CLEANED OUT WHEN ACCUMULATED SEDIMENT HAS REDUCED THE CAPACITY OF THE TRAP BY 50%. SEDIMENT REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF IN A MANNER WHICH PREVENTS IT FROM ENTERING THE TRAP AGAIN.
7. WHEN LAND IS EXPOSED DURING DEVELOPMENT, THE PERIOD OF EXPOSURE SHALL BE KEPT TO A MINIMUM. IF PERMANENT VEGETATION, PAVEMENT, AND/OR STRUCTURES ARE NOT COMPLETED WITHIN 14 DAYS, STRAW MULCH (OR OTHER APPROVED MATERIAL) SHALL BE SPREAD TO TEMPORARILY COVER EXPOSED SOILS.
8. NO PERMITTED CONSTRUCTION ACTIVITIES SHALL TAKE PLACE WITHIN ANY WATERCOURSES OR WETLANDS UNTIL APPROPRIATE MEASURES ARE TAKEN TO PROTECT AND/OR TEMPORARILY DIVERT FLOWING WATER PAST THE WORK AREA AND DOWNSTREAM SEDIMENT CONTROLS ARE IN PLACE. IN GENERAL, THESE SEDIMENT CONTROLS SHALL NOT BE REMOVED UNTIL UPSTREAM ACTIVITY HAS BEEN SATISFACTORILY COMPLETED AND THE STREAM FLOWS CLEAR.
9. ALL TOPSOIL WHICH HAS BEEN STRIPPED AND STOCKPILED SHALL BE PLACED AT LEAST 50 FEET FROM ANY WETLAND OR WATERCOURSE. THE TOE OF THE STOCKPILE SHALL BE PROTECTED IN A MANNER WHICH PREVENTS SOIL FROM MIGRATING.
10. RING ANY TEMPORARY STOCKPILES WITH SILT FENCE TO PREVENT EROSION OF THE PILE.
11. ALL TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL REMAIN IN PLACE AND BE MAINTAINED REGULARLY IN PROPER FUNCTIONING CONDITION UNTIL ALL AREAS EXPOSED DURING CONSTRUCTION HAVE BEEN SUITABLY STABILIZED WITH FINAL VEGETATIVE COVER, PERMANENT STRUCTURES, OR PAVEMENT.
12. THE CONTRACTOR SHALL COMPLY WITH THE PROVISIONS OF ALL ENVIROMENTAL/SPDES PERMITS ISSUED FOR THIS PROJECT AND LOCAL, STATE AND FEDERAL REGULATIONS.
13. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PREVENT CONTAMINATION OF THE EXISTING DRAINAGE SWALES BY SILT, SEDIMENT, FUELS, SOLVENTS, LIQUIDS, CONCRETE LEACHATE, OR ANY OTHER POLLUTANT ASSOCIATED WITH THE CONSTRUCTION OF THIS PROJECT.

CONSTRUCTION SCHEDULE:

1. FLAG THE LIMIT OF DISTURBANCE TO DELINEATE THE WORK AREAS.
2. HOLD A PRE–CONSTRUCTION MEETING PRIOR TO STARTING CONSTRUCTION.
3. INSTALL TEMPORARY STABILIZED CONSTRUCTION ENTRANCE.
4. INSTALL TEMPORARY SILT FENCING. SILT FENCE LOCATIONS AS DEPICTED ON PLANS ARE ILLUSTRATIVE. CONTRACTOR SHALL EXERCISE DILIGENCE WHEN INSTALLING SILT FENCE TO CAPTURE ALL SEDIMENT LADEN RUNOFF.
5. CLEAR AND ROUGH GRADE SITE IN THE AREAS OF IMMEDIATE CONSTRUCTION ACTIVITY ONLY.
6. STOCKPILE TOPSOIL. CONSTRUCT CHANNELS. BARE AREAS SHALL BE MULCHED SHOULD GRADING BE DISCONTINUED FOR MORE THAN 14 DAYS.
7. COMPLETE FINAL GRADING FOR SLOPE STABILIZATION.
8. COMPLETE FINAL GRADING. TOPSOIL CRITICAL AREAS AND PERMANENTLY VEGETATE, LANDSCAPE AND MULCH.
9. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AT LEAST ONCE EVERY (7) SEVEN CALENDER DAYS. NEEDED REPAIRS WILL BE MADE IMMEDIATELY. IF GREATER THAN 5 ACRES OF LAND IS DISTURBED AT ONE TIME, THE QUALIFIED INSPECTOR SHALL CONDUCT 2 SITE INSPECTIONS EVERY (7) SEVEN CALENDER DAYS.
10. AFTER THE SITE IS STABILIZED, REMOVE ALL TEMPORARY MEASURES AND INSTALL PERMANENT VEGETATION ON THE DISTURBED AREAS.

INSPECTIONS AND REPORTING:

1. FOLLOW ALL REQUIREMENTS OUTLINED IN THE SWPPP AND NYSDEC SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY, PERMIT NO. GP–0–15–002.

SILTATION CONTROL NOTES:

1. ALL SILTATION AND EROSION CONTROL STRUCTURES SHALL BE INSTALLED PRIOR TO ANY EXCAVATION AND AS ACCEPTABLE TO THE ENGINEER. SILT FENCE SHALL BE MAINTAINED FOR THE DURATION OF SAID WORK AND SHALL NOT BE REMOVED UNTIL APPROVED BY THE ENGINEER.

2. SILT FENCE SHALL CONSIST OF 24" HIGH GEOTEXTILE FABRIC (FILTER CLOTH) INSTALLED PARALLEL WITH THE TOE OF SLOPES AS INDICATED ON THE PLAN.

3. THE FABRIC SHALL BE FASTENED SECURELY AT THE TOP AND MID SECTION TO MIN. 3' LONG FENCE POSTS PLACED A MAX. OF 10' ON CENTER. THE BOTTOM 6" OF FABRIC SHALL BE LAID INTO THE TRENCH TO PREVENT UNDERMINING.

4. ADJOINING SECTIONS OF FILTER CLOTH SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.

5. SILT FENCING SHALL BE CLEANED OUT WHEN NEED, WHEN ACCUMULATED SEDIMENT HAS REDUCED THE CAPACITY BY 50% OR BULGES DEVELOP IN THE FABRIC. SEDIMENT REMOVED BE PROPERLY DISPOSED OF IN A MANNER WHICH PREVENTS IT FROM ENTERING THE AREA AGAIN.

6. SILT FENCE SHALL BE INSTALLED IN ALL AREAS THAT WILL HAVE AN EXCAVATION OPEN FOR MORE THAN 24 HOURS.

7. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF–PRODUCING RAINFALL AND NO LESS THAN ONCE EVERY WEEK. ANY NEED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED AND INSTALLED FOR THEIR APPROPRIATE PHASE OF THE PROJECT.

LANDSCAPING & VEGETATION ESTABLISHMENT NOTES:

1. ALL TEMPORARY SEEDING SHALL BE RYEGRASS (ANNUAL OR PERENNIAL) AT AN APPLICATION RATE OF 0.7 POUNDS PER 1,000 SQUARE FEET. MULCH IMMEDIATELY AFTER SEEDING WITH STRAW AT A RATE OF 2 BALES (90 lbs) PER 1,000 SQUARE FEET.
2. ALL OTHER SITE AREAS SPECIFIED FOR PERMANENT GRASS VEGETATION SHALL BE SEEDED WITH A MIXTURE OF PERENNIAL RYEGRASS SEED OF THE PENNFINE/JUNN VARIETY AT A RATE 0.10 POUNDS PER 1,000 SQUARE FOOT. EROSION AND SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE INSPECTED UNTIL FULL VEGETATION IS ESTABLISHED.
3. STRAW MULCH SHALL BE USED FOR ALL AREAS WHERE VEGETATION IS TO BE ESTABLISHED. MULCH SHALL BE INSTALLED IMMEDIATELY AFTER SEEDING AT A RATE OF 90–100 POUNDS PER 1,000 SQUARE FEET.

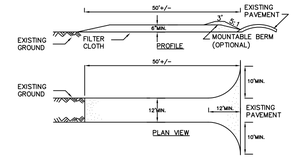
MAINTENANCE SCHEDULE:

MAINTENANCE DURING CONSTRUCTION

- ALL EROSION AND SEDIMENT CONTROL PRACTICES ALONG WITH TREE PROTECTION PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION EVERY SEVEN DAYS. ANY NEEDED REPAIRS WILL BE DONE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED AND INSTALLED FOR THEIR APPROPRIATE PHASE OF THE PROJECT.
- THE STABILIZED CONSTRUCTION ENTRANCES SHALL BE CLEANED OR REPLACED WHEN TRACKING OF SEDIMENT BECOMES EVIDENT.

LONG TERM MAINTENANCE

- WEED AND WATER TO ESTABLISH PERMANENT VEGETATION.
- REPLACEMENT/REHABILITATION SHALL BE MADE TO ANY ERODED AREAS.
- PROVIDE REPLACEMENT OF PLANTINGS, MULCH, WEEDING AND THINNING TO MAINTAIN THE DESIRED APPEARANCE.
- THE STORM WATER MANAGEMENT AREAS SHALL BE KEPT CLEAN OF TRASH AND DEBRIS.
- INSPECT AT LEAST TWICE DURING THE FIRST SIX MONTHS. SUBSEQUENTLY, INSPECTIONS SHOULD BE CONDUCTED ANNUALLY AND AFTER STORM EVENTS GREATER THAN 2".

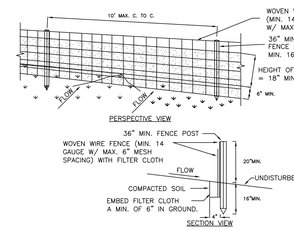


CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY–FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN EVENT.
10. STABILIZED CONSTRUCTION ENTRANCES SHALL BE CONSTRUCTED AND MAINTAINED AT SITE ENTRANCES DURING PHASE I CONSTRUCTION AND AT DRIVEWAY ENTRANCES DURING PHASE II CONSTRUCTION.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

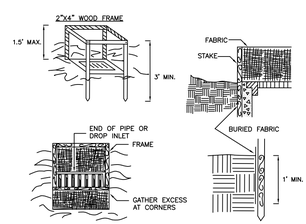


CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER–LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
6. SILT FENCE LOCATIONS AS DEPICTED ON PLANS ARE ILLUSTRATIVE. CONTRACTOR SHALL EXERCISE DILIGENCE WHEN INSTALLING SILT FENCE TO CAPTURE ALL SEDIMENT LADEN RUNOFF.

SILT FENCE DETAIL

NOT TO SCALE



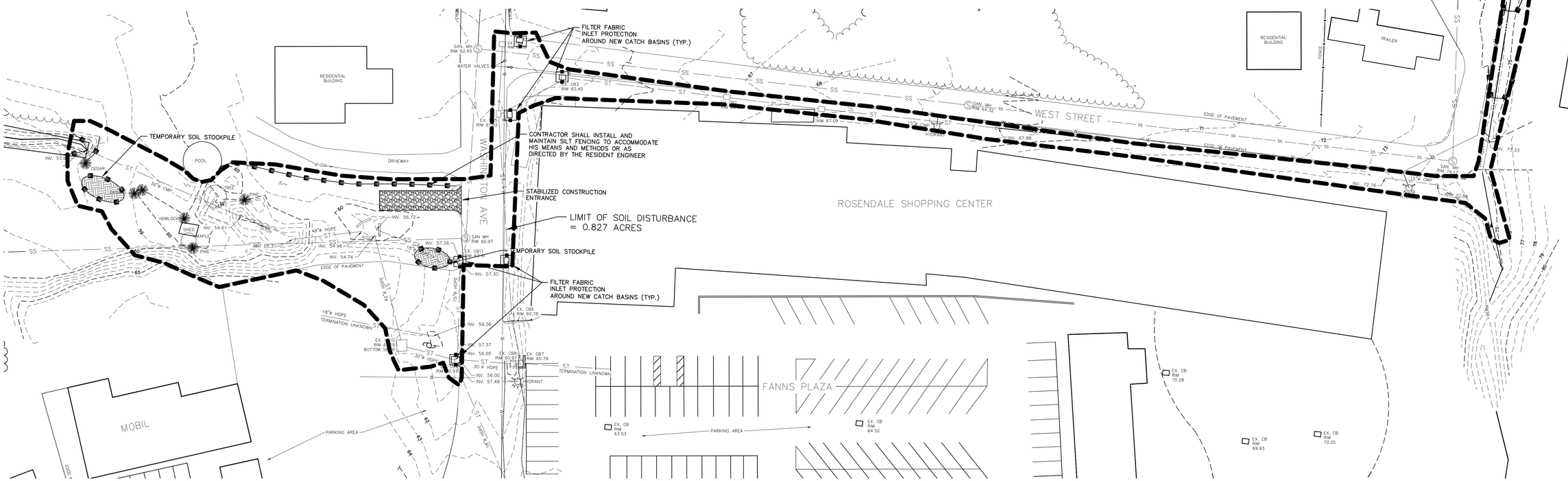
CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40–85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUN DRAINAGE AREA 1 ACRE

FILTER FABRIC INLET PROTECTION

NOT TO SCALE



EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 30'

EROSION AND SEDIMENT CONTROL PLAN – EAST
CONTRACT NO. TS–171

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	SILT FENCE AND CB INLET PROTECTION

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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. FELL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058741 STATE OF NEW YORK

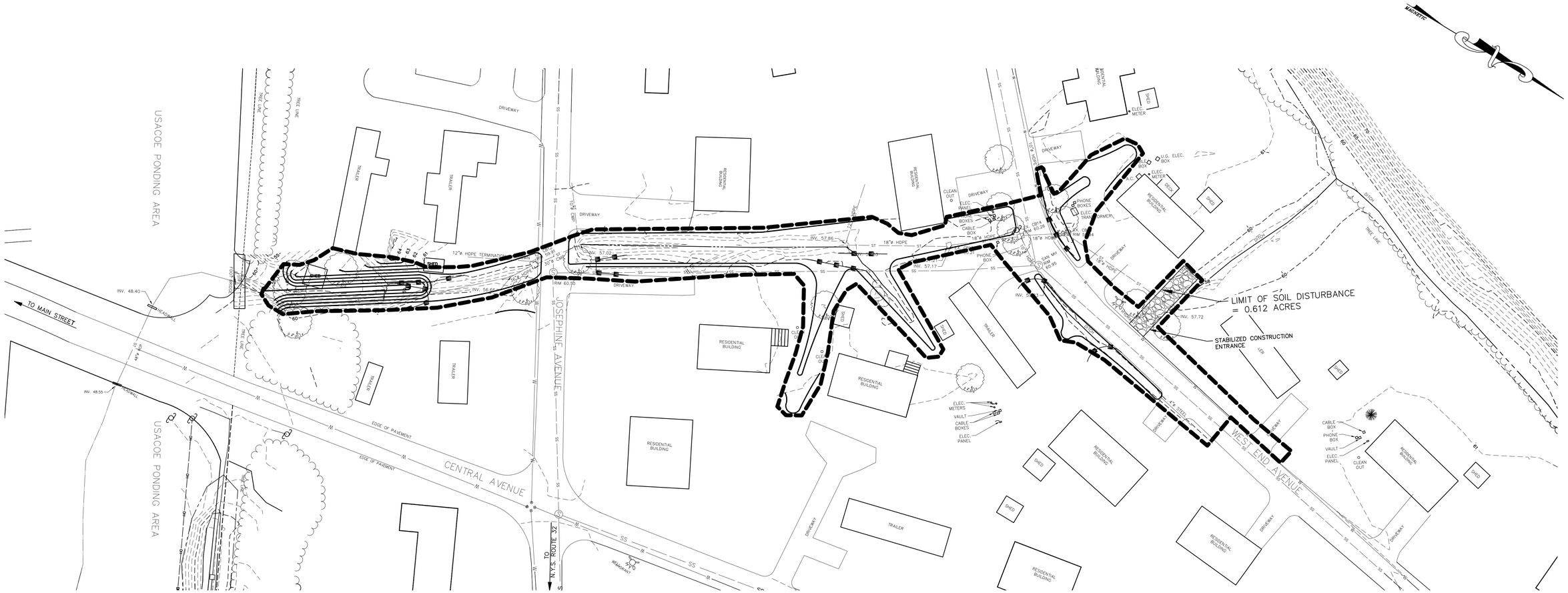
Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845–338–7622 Fax: 845–338–7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		14 OF 16
	DWG RJS	CHK JEM	



EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 30'

NOTE:

1. SEE SHEET 14 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
2. CONTRACTOR SHALL INSTALL AND MAINTAIN SILT FENCING TO ACCOMMODATE HIS MEANS AND METHODS OR AS DIRECTED BY THE OWNERS REPRESENTATIVE.
3. SEE SHEET 12 FOR GRADING PLAN.

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EX. CB1 EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- SILT FENCE AND CB INLET PROTECTION

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LICENSED PROFESSIONAL ENGINEER JENNIFER M. LARIOS 058741 STATE OF NEW YORK

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EROSION AND SEDIMENT
CONTROL PLAN – EAST
CONTRACT NO. TS–171

WASHINGTON PARK STORMWATER MITIGATION
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NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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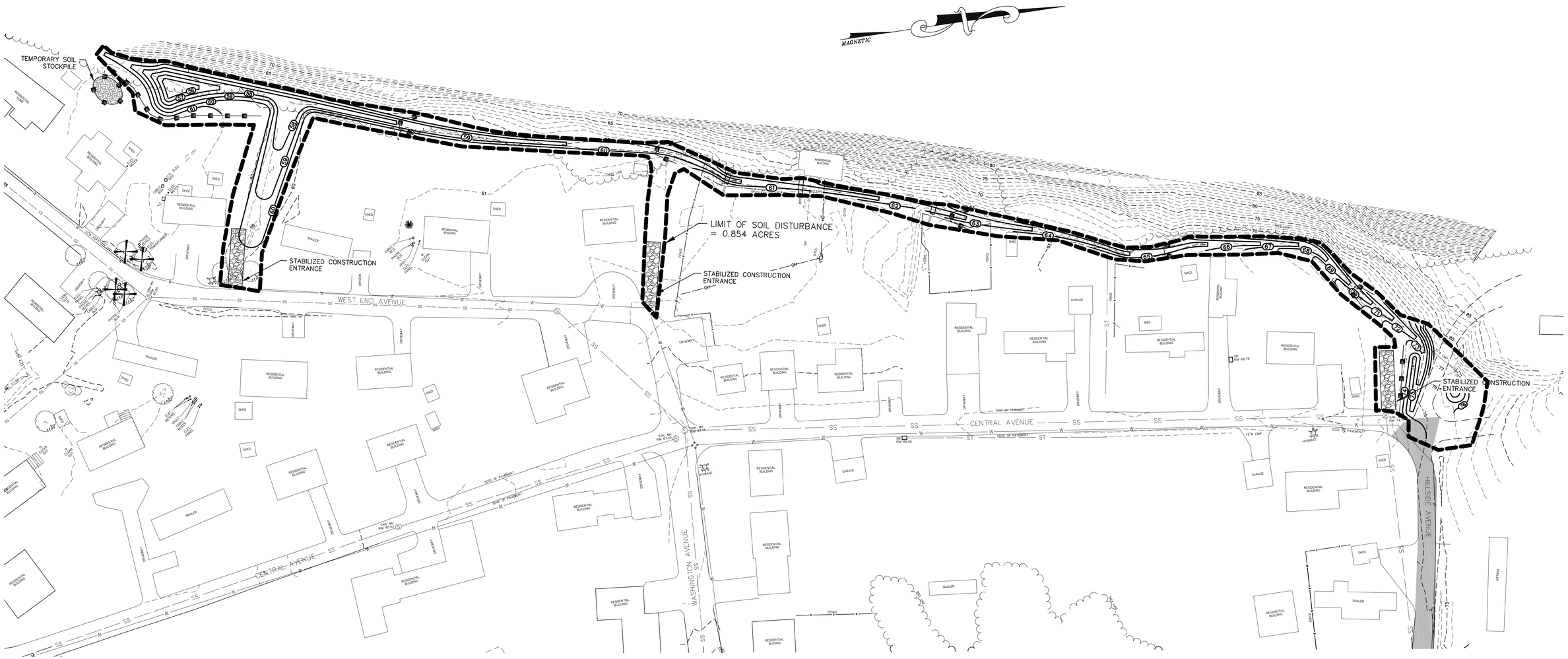
	DWG RJS	CHK JEM	



EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 40'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	SILT FENCE AND CB INLET PROTECTION

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3. SEE SHEET 12 FOR GRADING PLANS.

GRAPHIC SCALE IN FEET

40 0 40

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL #9679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIS M. LARIOS 058747 STATE OF NEW YORK

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EROSION AND SEDIMENT CONTROL PLAN – MOUNTAIN SWALE
CONTRACT NO. TS–171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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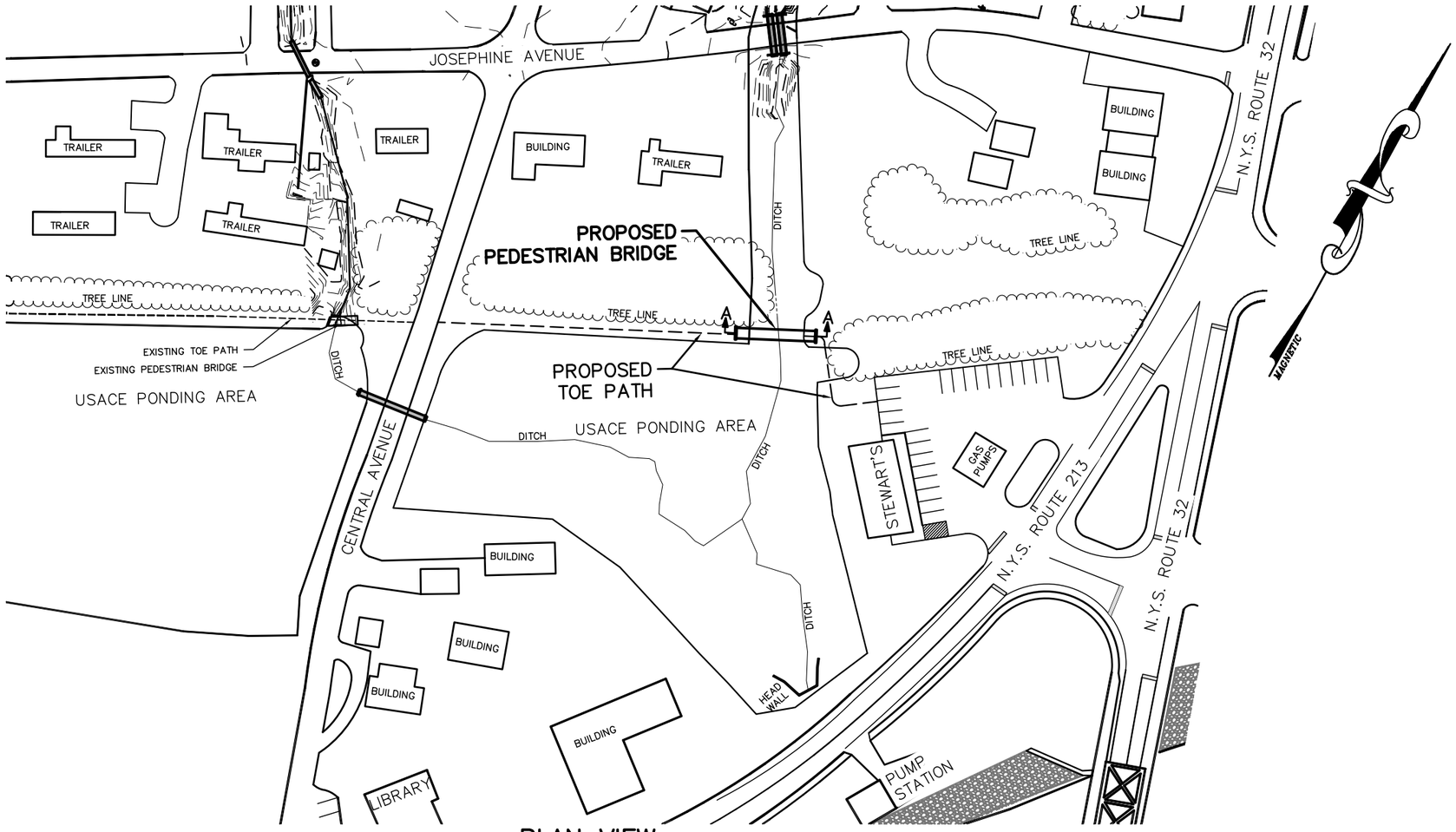
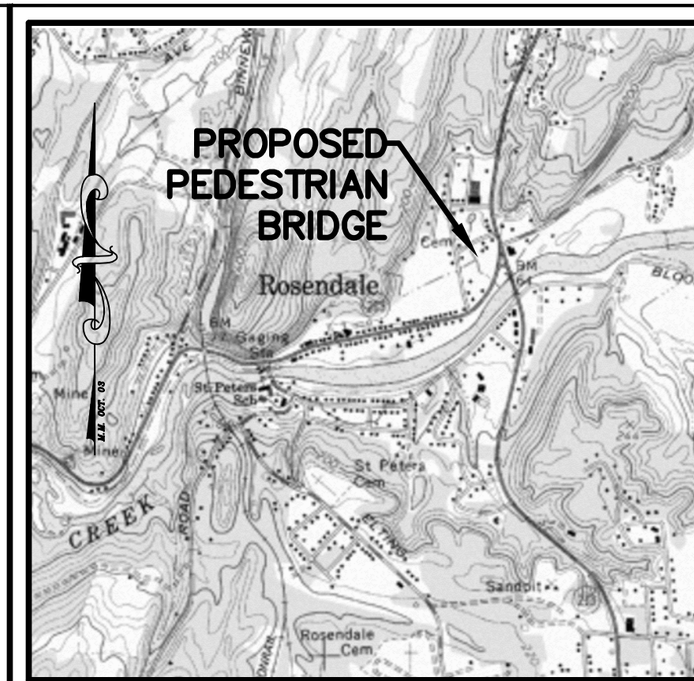
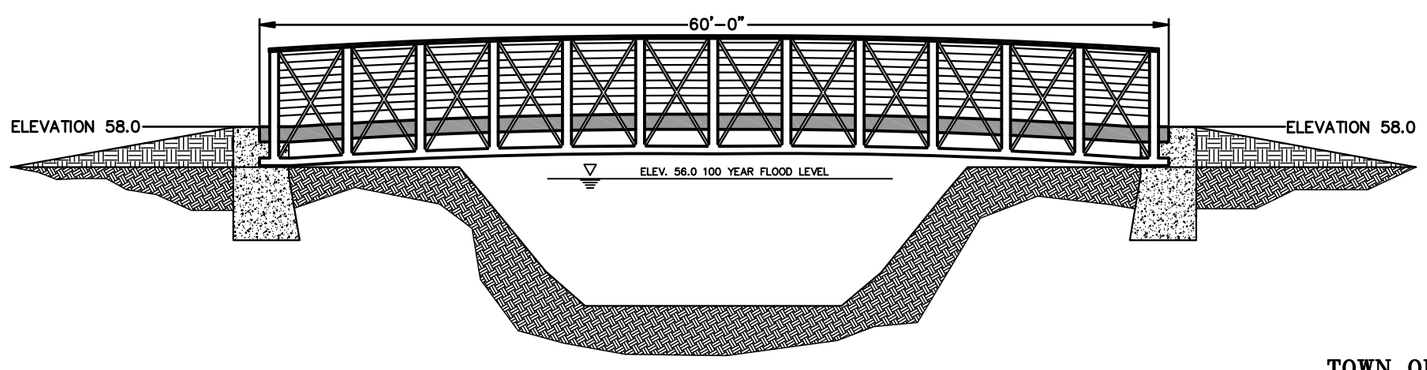
1" = 40'	FEB. 2016		16 OF 16
	DWG RJS	CHK JEM	



PLAN VIEW
SCALE: 1" = 100'



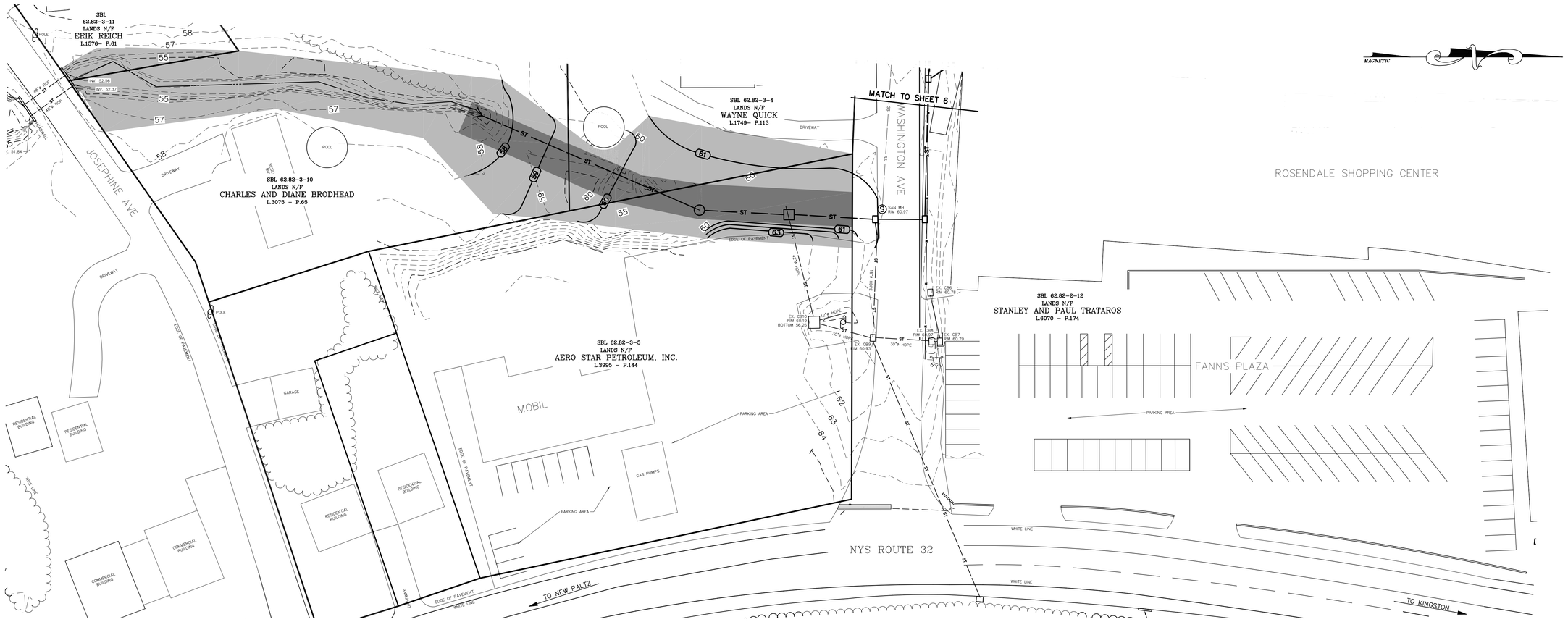
LOCATION MAP
ROSENDALE QUADRANGLE
7.5' MINUTE USGS TOPOGRAPHIC MAP
SCALE: 1" = 2000'



SECTION VIEW A-A
NOT TO SCALE

CHANGE ORDER NO. 1
PEDESTRIAN BRIDGE
WASHINGTON PARK
STORMWATER MITIGATION

TOWN OF ROSENDALE, ULSTER COUNTY, NEW YORK



SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
AERO STAR PETROLEUM INC 62.82-3-5	20' WIDE 0.05 ACRES	WIDTH VARIES 0.07 ACRES
WAYNE QUICK 62.82-3-4	20' WIDE 0.02 ACRES	WIDTH VARIES 0.08 ACRES
CHARLES AND DIANE BRODHEAD 62.82-3-10	20' WIDE 0.03 ACRES	WIDTH VARIES 0.25 ACRES
ERIK REICH 62.82-3-11	NONE	WIDTH VARIES 0.02 ACRES

LEGEND

- 50 — CONTOURS (MINOR)
- 52 — CONTOURS (MAJOR)
- ℄ — PROPERTY LINE
- ST — EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- x — FENCE
- UTILITY POLE
- EX. CB1 — EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- ST — PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- 62 — PROPOSED CONTOUR
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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DRAFT

REQUIRED EASEMENTS
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY

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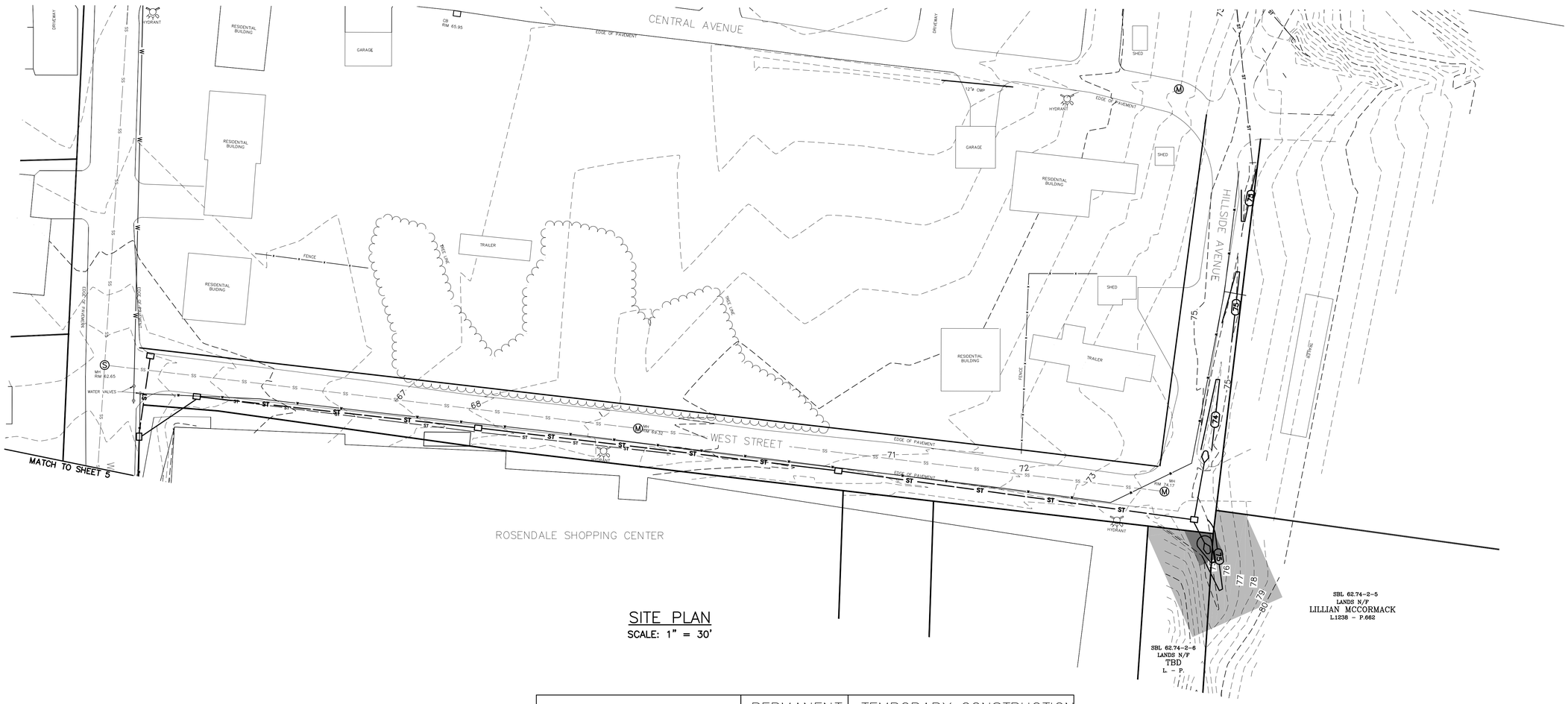
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE	SHEET NO.
1" = 30'	NOV. 2016	1 OF 4
	DWG RJS / CHK	

MAGNETIC



SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
LILLIAN MCCORMACK 62.74-2-5	20' WIDE 0.001 ACRES	WIDTH VARIES 0.04 ACRES
TBD 62.74-2-6	20' WIDE 0.004 ACRES	WIDTH VARIES 0.03 ACRES

DRAFT

REQUIRED EASEMENTS
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EX. CB1 EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR

GRAPHIC SCALE IN FEET

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LICENSED PROFESSIONAL ENGINEER BRIAN M. LARIOS 058741 STATE OF NEW YORK

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1" = 30'	NOV. 2016		2 OF 4
	DWG RJS	CHK	

SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
LAMONT VANWEZEMAAL 62.82-1-4	20' WIDE 0.04 ACRES	WIDTH VARIES 0.19 ACRES
WASHINGTON EST. DEV. CORP. 62.82-1-12.100	20' WIDE 0.25 ACRES	WIDTH VARIES 0.38 ACRES
CHARLES AND DIANE BRODHEAD 62.82-1-12.100	NONE	WIDTH VARIES 0.02 ACRES
LAURA AND CAMERON HENDRIX 62.82-1-13	NONE	WIDTH VARIES 0.04 ACRES

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EX. CB1 EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR
- PROPOSED MOUNTAIN SWALE
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

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DRAFT

REQUIRED EASEMENTS
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
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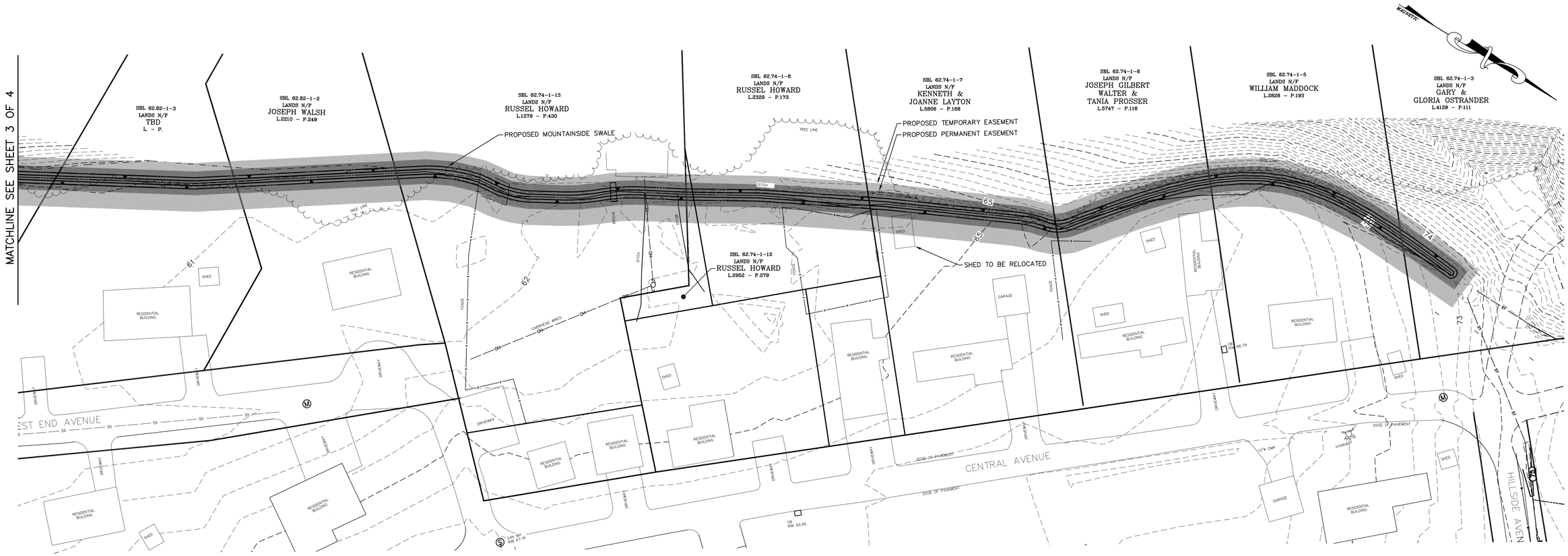
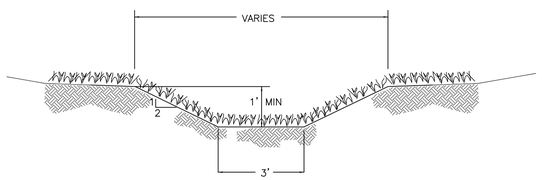
	DWG RJS	CHK	



SITE PLAN

SCALE: 1" = 30'



VEGETATION REQUIREMENTS FOR OPEN CHANNELS
SEED MIXTURE SHALL BE TALL FESCUE OR SMOOTH BROMEGRASS (0.45 LBS/1000 SF), KENTUCKY BLUEGRASS (0.6 LBS/1000 SF) OR PERENNIAL RYEGRASS (0.2 LBS/1000 SF). MULCH SEEDED AREAS. FERTILIZE, LIME AND MOW AS NEEDED TO MAINTAIN DENSE PROTECTIVE COVER.

TYPICAL MOUNTAINSIDE SWALE SECTION

NOT TO SCALE

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
TBD 62.82-1-3	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
JOSEPH WALSH 62.82-1-2	15' WIDE 0.03 ACRES	15' WIDE 0.03 ACRES
RUSSELL HOWARD 62.74-1-13	15' WIDE 0.06 ACRES	15' WIDE 0.06 ACRES
RUSSELL HOWARD 62.74-1-12	15' WIDE 0.001 ACRES	15' WIDE 0.002 ACRES
RUSSELL HOWARD 62.74-1-8	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
KENNETH & JOANNE LAYTON 62.74-1-7	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
JOSEPH GILBERT 62.74-1-6	15' WIDE 0.03 ACRES	15' WIDE 0.03 ACRES
WILLIAM MADDOCK 62.74-1-5	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
GARY & GLORIA OSTRANDER 62.74-1-3	15' WIDE 0.02 ACRES	15' WIDE 0.02 ACRES

DRAFT

REQUIRED EASEMENTS
MOUNTAINSIDE SWALE
CONTRACT NO. TR-171

LEGEND

- 50 — CONTOURS (MINOR)
- 52 — CONTOURS (MAJOR)
- R — PROPERTY LINE
- ST — EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- x — FENCE
- UTILITY POLE
- EX. CB1 — EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- ST — PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- 65 — PROPOSED CONTOUR
- PROPOSED MOUNTAIN SWALE
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

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	DWG RJS	CHK	

NEW YORK STATE OF OPPORTUNITY.
Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ROSE HARVEY
Commissioner

March 16, 2017

Ms. Dina Peoples
Geologist II
Tectonic Engineering
70 Pleasant Hill Road
Mountainville, NY 10953

Re: HUD
Washington Park Stormwater Mitigation Project
Town of Rosendale, Ulster County, NY
17PR01469

Dear Ms. Peoples:

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). We have reviewed the project in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

Based upon this review, the New York SHPO has determined that no historic properties will be affected by this undertaking.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Michael F. Lynch, P.E., AIA

Director, Division for Historic Preservation

Governor's Office of
Storm Recovery

ANDREW M. CUOMO
Governor

LISA BOVA-HIATT
Executive Director

March 20, 2017

Ron LaFrance, Jr.; Paul Thompson; and Beverly Cook, Chiefs
St. Regis Mohawk Tribe
412 State Route 37
Akwesasne, NY 13655

Re: Section 106 Compliance for the Washington Park Stormwater Mitigation Project, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, NY

Dear Chiefs of the St. Regis Mohawk Tribe:

Pursuant to the Disaster Relief Appropriations Act, 2013 (Public Law 113-2) and the Housing and Community Development Act (42 U.S.C. § 5301 et seq.), the Governor's Office of Storm Recovery (GOSR), an office of New York State Homes and Community Renewal's Housing Trust Fund Corporation as a recipient of Community Development Block Grant – Disaster Recovery ("CDBG-DR") funds from the United States Department of Housing and Urban Development ("HUD"), is serving as the entity responsible for compliance with the HUD environmental review procedures set forth in 24 CFR Part 58. GOSR is acting on behalf of HUD in providing the enclosed project information and inviting this discussion with your Tribe to respond with any concerns or comments.

GOSR processes environmental reviews for projects funded with HUD CDBG-DR on a case-by-case basis. In accordance with Section 101(d)(6)(B) of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470a), and its implementing regulations, 36 Code of Federal Regulations (CFR) Part 800, this letter serves as notification of the proposed action. This consultation is being sent to the Delaware Nation, Delaware Tribe of Indians, Mohawk Nation, Saint Regis Mohawk Tribe, and the Stockbridge-Munsee Community Band of Mohicans.

Area of Potential Effect: The Washington Park Stormwater Mitigation Project ("Proposed Project") involves the installation of culvert pipes, drainage ditches, swales, catch basins, a storm sewer manhole, and a pedestrian bridge in the Town of Rosendale, Ulster County, New York. Washington Park, the residential area located northwest of the intersection of New York State (NYS) Route 32 and NYS Route 213, has been subjected to historic, chronic flooding during large rain events. The proposed drainage improvements will effectively convey water during 50-year storm events and alleviate chronic flooding problems. The project location is identified on the enclosed street map and USGS topographic map.

Project Description: CDBG-DR funding is proposed for the improvement of two defined drainageways that cross through the Washington Park area. Runoff from a hill/mountain to the

northeast and runoff from the hillside adjacent to Fann's Plaza are conveyed by storm sewers to an extant United States Army Corps of Engineers (USACE) ponding area located on the south side of the Site (hereafter referred to as the Eastern Drainage System). Runoff from a hill/mountain to the west is conveyed via a swale at the base of the mountain to a storm sewer system that crosses under West End Avenue and Josephine Avenue to an existing USACE ponding area on the west side of Central Avenue (hereafter referred to as the Western Drainage System).

Improvement of the Eastern Drainage System will involve the construction of the following: a drainage swale along Hillside Avenue; a new storm sewer along West Street (from Hillside Avenue to Washington Avenue); a new storm sewer on Washington Avenue (from West Street to where it crosses under Washington Avenue); and a new storm sewer from Washington Avenue to the USACE ponding area. An existing USACE ponding area will also be regraded to provide a uniform alignment and cross sectional area that is consistent with the original USACE Rondout Creek Flood Control design. Proposed Eastern Drainage System improvements will include the installation of 181 linear feet (LF) of 48" diameter HDPE culvert pipe, 46 LF of 36" diameter HDPE culvert pipe, 745 LF of 24" diameter HDPE culvert pipe, 46 LF of 18" diameter HDPE culvert pipe, nine catch basins, and one storm sewer manhole. There are a total of eight trees located east of NYS Route 32 and south of Washington Avenue to be removed for project construction. These trees are situated between residential and commercial properties.

Improvement of the Western Drainage System will involve the construction of a drainage swale along the mountainside from the intersection of Central Avenue and Hillside Avenue to SBL# 62.82-1-4 (37 West End Avenue) and a new storm sewer from SBL# 62.82-1-4 (37 West End Avenue) to the existing USACE ponding area on the south side of Josephine Avenue. The Western Drainage System will be designed with a filter fabric lined trench and one perforated 30" HDPE pipe to provide positive relief of any potential shallow groundwater levels. Shallow groundwater would drain by gravity through a one-foot thick stone layer under the pipe and the perforated pipe. Proposed Western Drainage System improvements will include the installation of 1,002 LF of 30" diameter HDPE culvert pipe (dual culvert 501 LF) and five catch basins. The proposed mountainside drainage swale crosses through nine private properties. During construction, four trees will be removed from West End Avenue and two trees will be removed on Josephine Avenue, where the proposed drainage system would intersect the roadway. These trees are located in the right-of-way adjacent to residential properties. Temporary construction easements and permanent drainage maintenance easements will have to be obtained. The project engineering design plans are included with this letter for your review.

With this letter, GOSR respectfully submits for your review the attached documentation for the proposed project described herein. GOSR initiated consultation with the New York State Historic Preservation Office and their concurrence indicating that no historic properties will be affected, dated March 16, 2017, is included with this letter for your records. If the Area of Potential Effect encompasses historic properties of religious or cultural significance to your Tribe, please respond within 30 days or sooner. Additionally, please indicate if there are other sources of information or other parties, Nations, Tribes, or members of the public you believe should be included in the consultation process. Please respond by email or in writing to the address listed below.

Lori A. Shirley
Director, Bureau of Environmental Review and Assessment, GOSR
New York State Homes & Community Renewal
38-40 State St. 408N, Hampton Plaza
Albany, New York 12207

If you have any questions or require additional information regarding this request, please feel free to contact me at (518) 474-0755 or via email at Lori.Shirley@nyshcr.org. Thank you for your time and consideration.

Sincerely,

Lori A. Shirley
Director, Bureau of Environmental Review and Assessment, GOSR

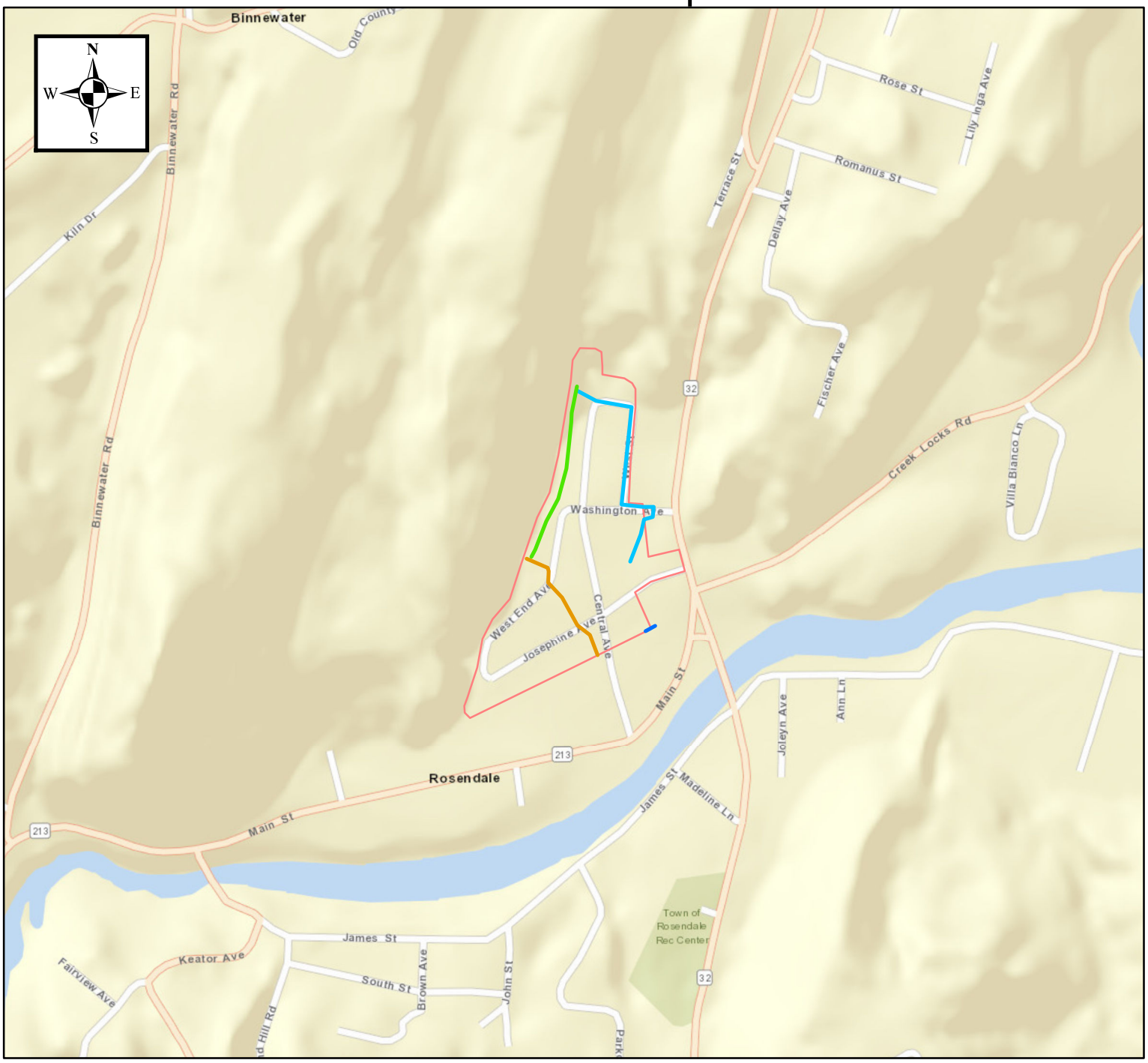
Enclosures:
Project Location Maps
Project Engineering Design Plans
NYSHPO No Affect Letter

Electronic letter sent to:
Arnold Printup
Saint Regis Mohawk Tribe, THPO
412 State Route 37
Akwesasne, NY 13655

Attachment 1

Street Map,
Topographic Map,
& Aerial Photograph

Location Map



TECTONIC

Practical Solutions, Exceptional Service

0 500 1,000 2,000 Feet

1:10,000

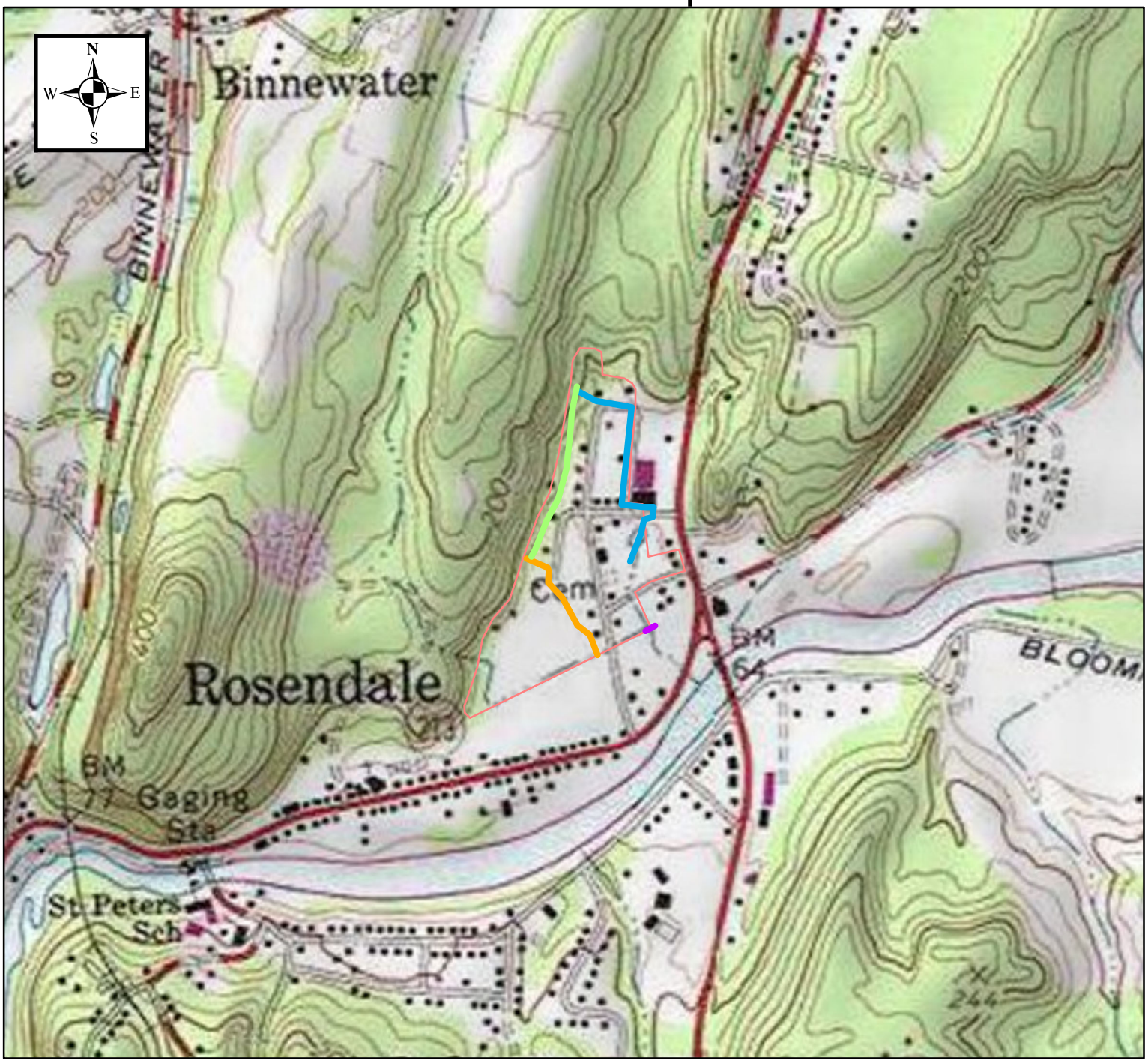
Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

Legend

Approximate Work Locations

- **Eastern Drainage System**
- **Mountain Swale**
- **Western Drainage System**
- **Pedestrian Bridge**
- **Washington Park (Approximate Boundary)**

Location Map



TECTONIC
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0 500 1,000 2,000 Feet

1:10,000

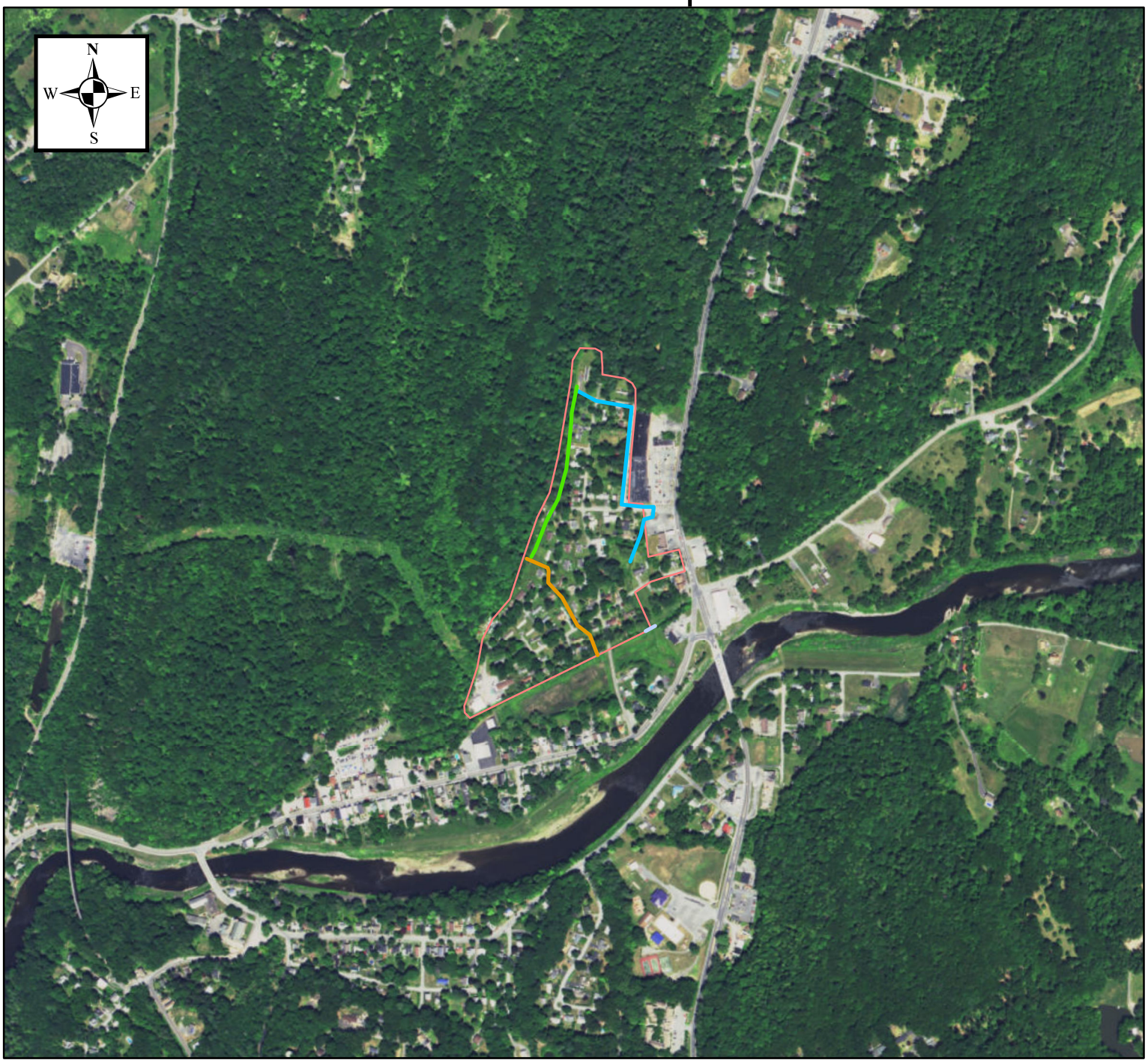
Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

Legend

Approximate Work Locations

- **Eastern Drainage System**
- **Mountain Swale**
- **Western Drainage System**
- **Pedestrian Bridge**
- **Washington Park (Approximate Boundary)**

Location Map



TECTONIC
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Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
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Approximate Work Locations

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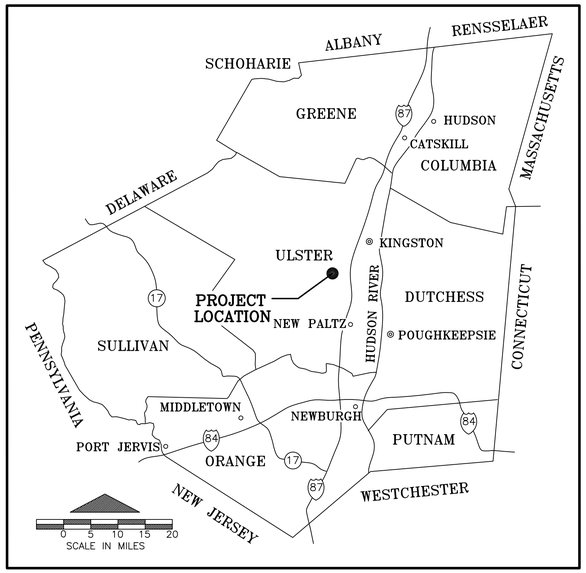
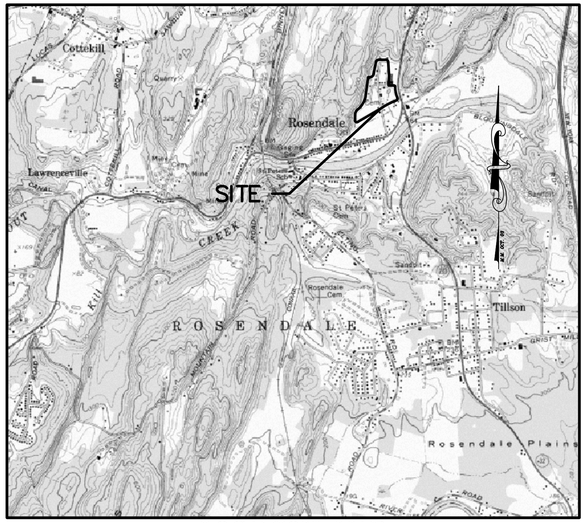
- **Pedestrian Bridge**
- **Washington Park (Approximate Boundary)**



GENERAL LOCATION MAP

AERIAL VIEW



LOCATION MAP
ROSENDALE QUADRANGLE
7.5' MINUTE USGS TOPOGRAPHIC MAP
SCALE: 1" = 2000'

CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION

NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNOR'S OFFICE OF STORM RECOVERY

TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

TOWN OFFICIALS

JEANNE L. WALSH, TOWN SUPERVISOR

TOWN COUNCIL
JOHN P. HUGHES
JENNIFER METZGER
CHRISTOPHER PRYLOPSKI
FRANK KLEPEIS
ROBERT S. GALLAGHER, HIGHWAY SUPERINTENDENT
MANDY CONSTABLE, TOWN CLERK

FEBRUARY 2017

FINAL DESIGN FOR AGENCY REVIEW

SHEET INDEX

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	KEY MAP
3.	EXISTING CONDITIONS 1, EASTERN DRAINAGE SYSTEM
4.	EXISTING CONDITIONS 2, EASTERN DRAINAGE SYSTEM
5.	SELECTIVE DEMOLITION, EASTERN DRAINAGE SYSTEM
6.	PLAN AND PROFILE 1, EASTERN DRAINAGE SYSTEM
7.	PLAN AND PROFILE 2, EASTERN DRAINAGE SYSTEM
8.	EXISTING CONDITIONS, WESTERN DRAINAGE SYSTEM
9.	SELECTIVE DEMOLITION, WESTERN DRAINAGE SYSTEM
10.	PLAN AND PROFILE, WESTERN DRAINAGE SYSTEM
11.	EXISTING CONDITIONS, MOUNTAIN SWALE
12.	GRADING PLAN, MOUNTAIN SWALE
13.	DETAILS
14.	EROSION AND SEDIMENT CONTROL – EAST
15.	EROSION AND SEDIMENT CONTROL – WEST
16.	EROSION AND SEDIMENT CONTROL – MOUNTAIN SWALE

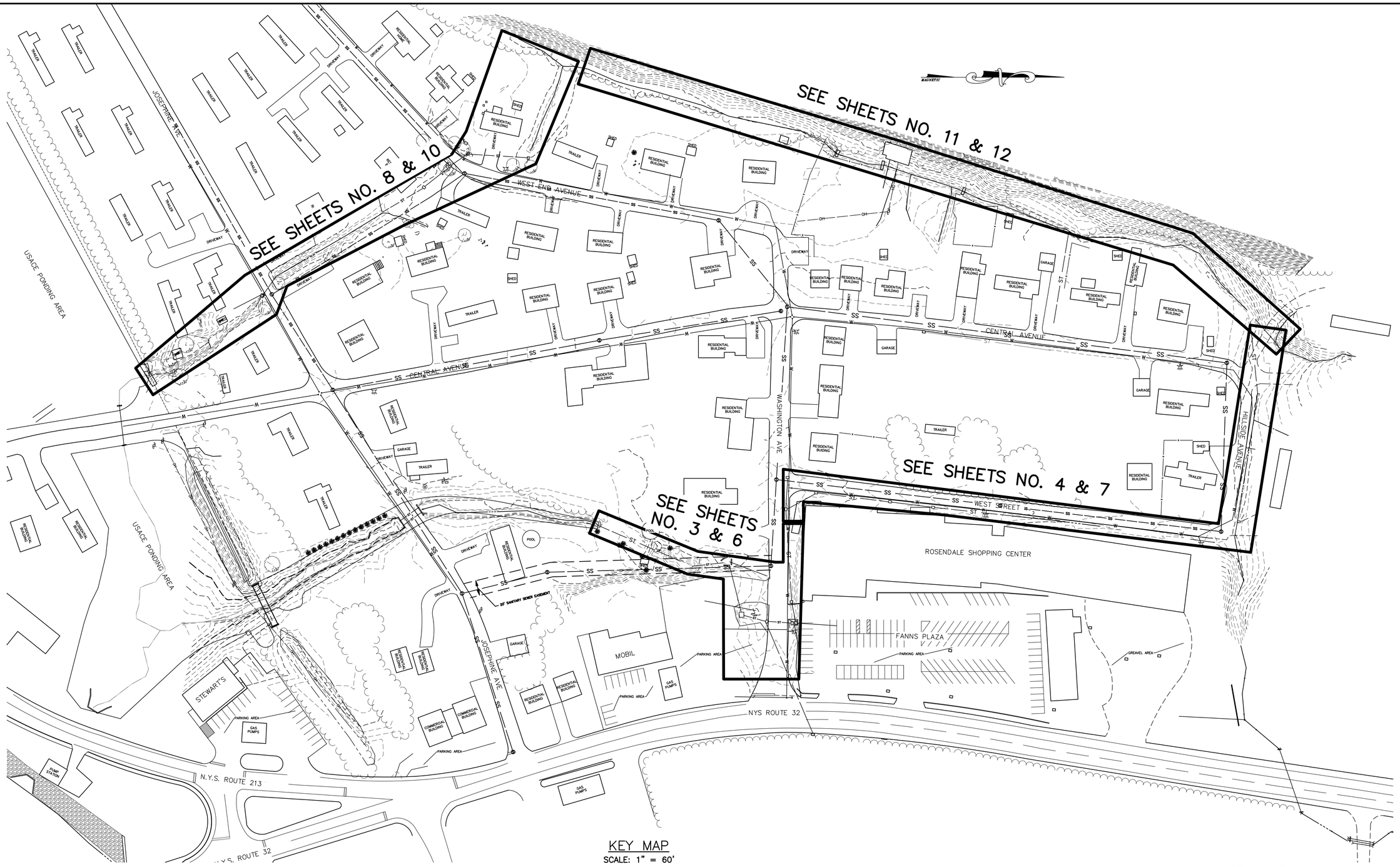
BRINNIER AND LARIOS, P.C.
PROFESSIONAL ENGINEERS AND LAND SURVEYORS
67 MAIDEN LANE
KINGSTON, NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 056741 STATE OF NEW YORK

LICENSED LAND SURVEYOR CHRISTOPHER J. ELLI 49629 STATE OF NEW YORK

Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

811 Know what's below. Call before you dig.



KEY MAP
SCALE: 1" = 60'

KEY MAP
CONTRACT NO. TR-171

NOTE:
The location of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the contractor's failure to exactly locate and preserve any and all underground utilities.

GRAPHIC SCALE IN FEET
60 0 60

LICENSED LAND SURVEYOR
CHRISTOPHER J. TELL
49629
STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER
BENJAMIN M. LARIOS
058747
STATE OF NEW YORK

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WASHINGTON PARK STORMWATER MITIGATION

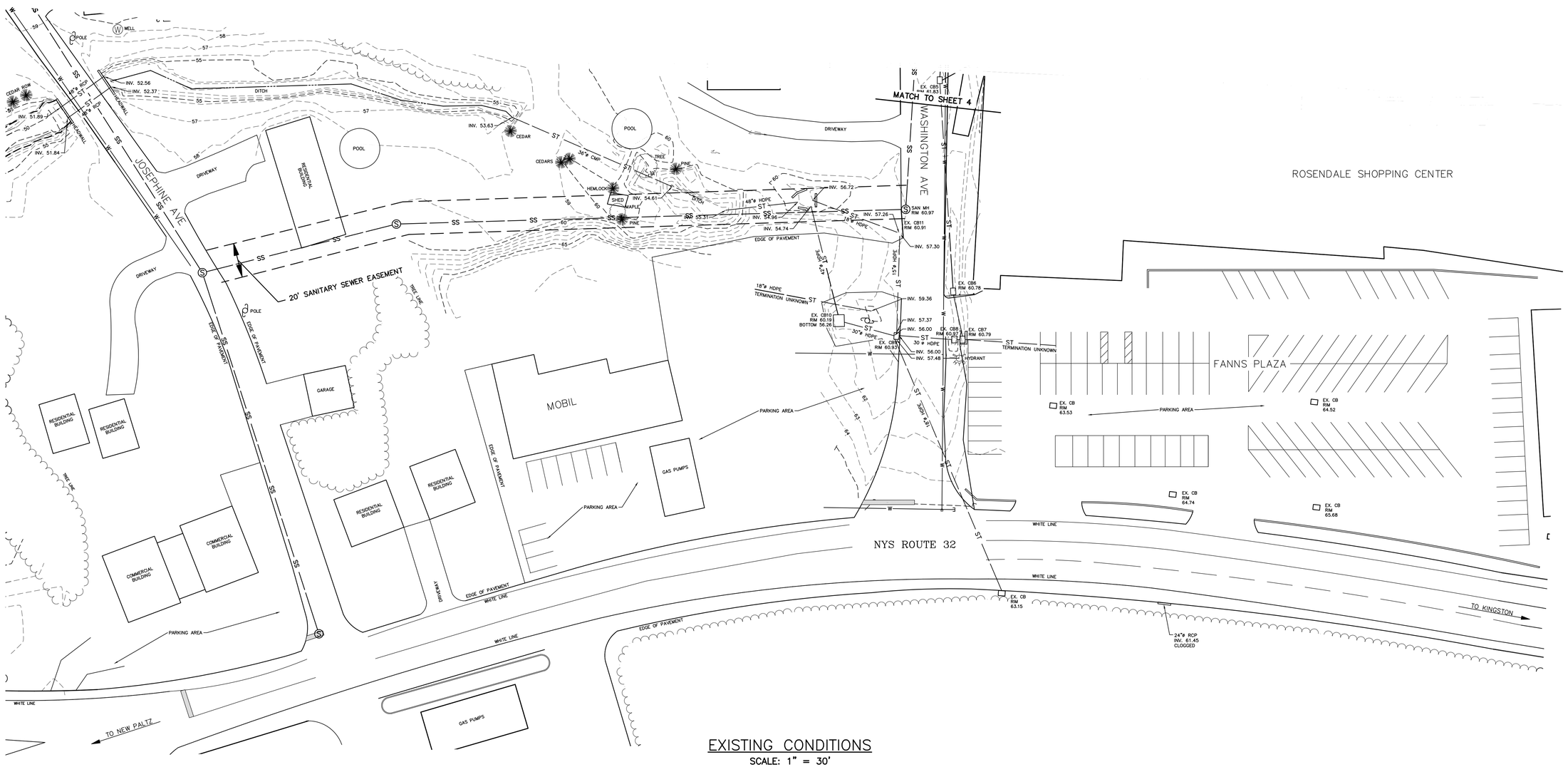
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY

TOWN OF ROSENDALE | ULSTER COUNTY | NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 60'	FEB. 2017		2 OF 16
	DWG RJS	CHK JEM	



EXISTING CONDITIONS

SCALE: 1" = 30'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
X	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:

1. FIELD SURVEY PERFORMED BY BRINNIER AND LARIOS, P.C. ON JUNE 15, 2016, AUGUST 29, 2016 AND NOVEMBER 23, 2016.
2. USACE PONDING AREA BOUNDARY FROM USACE ROSENDALE FLOOD CONTROL PROJECT DRAWING NUMBER CC-RC-209, SHEET 9 OF 79

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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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EXISTING CONDITIONS 1
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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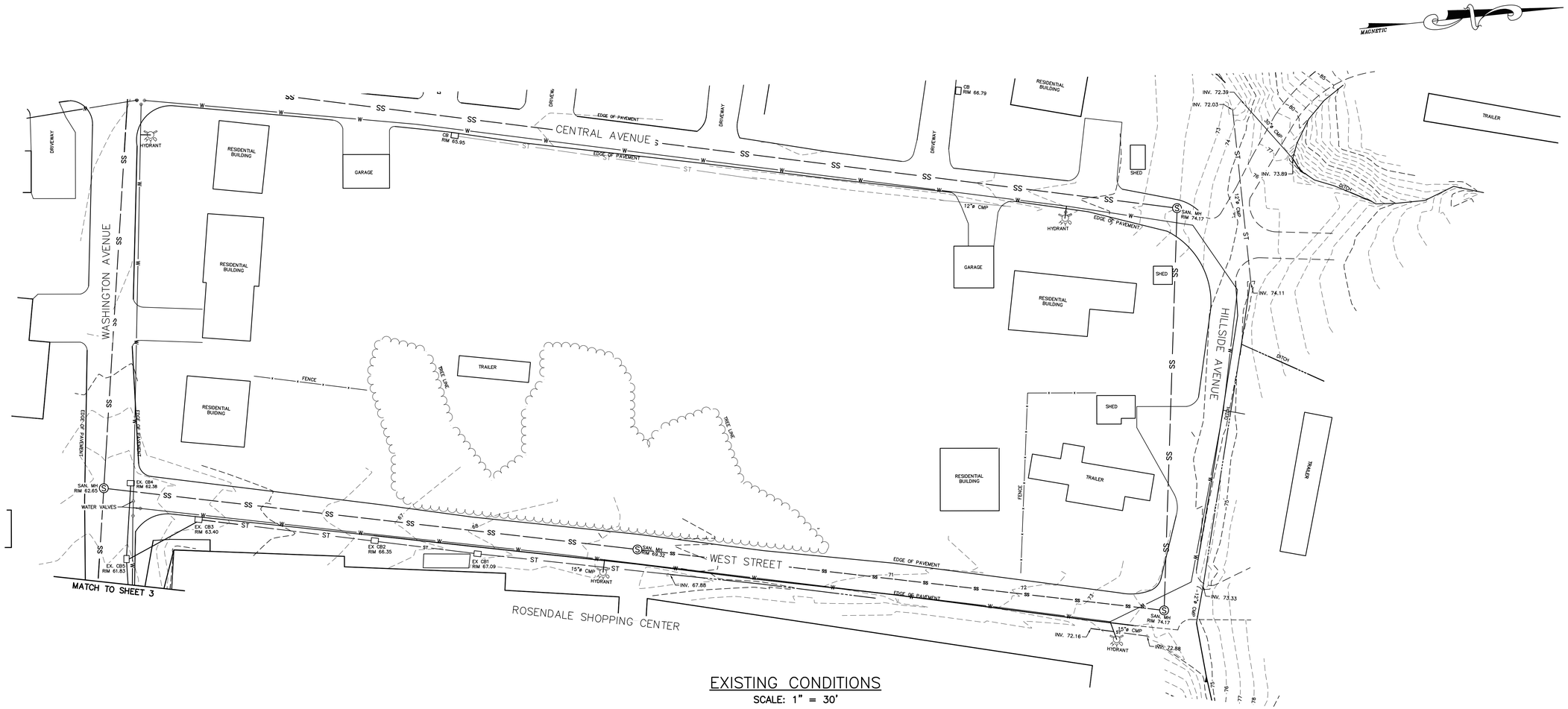
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		3 OF 16
	DWG RJS	CHK JEM	



EXISTING CONDITIONS

SCALE: 1" = 30'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
℄	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:

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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIG M. LARIOS 058747 STATE OF NEW YORK

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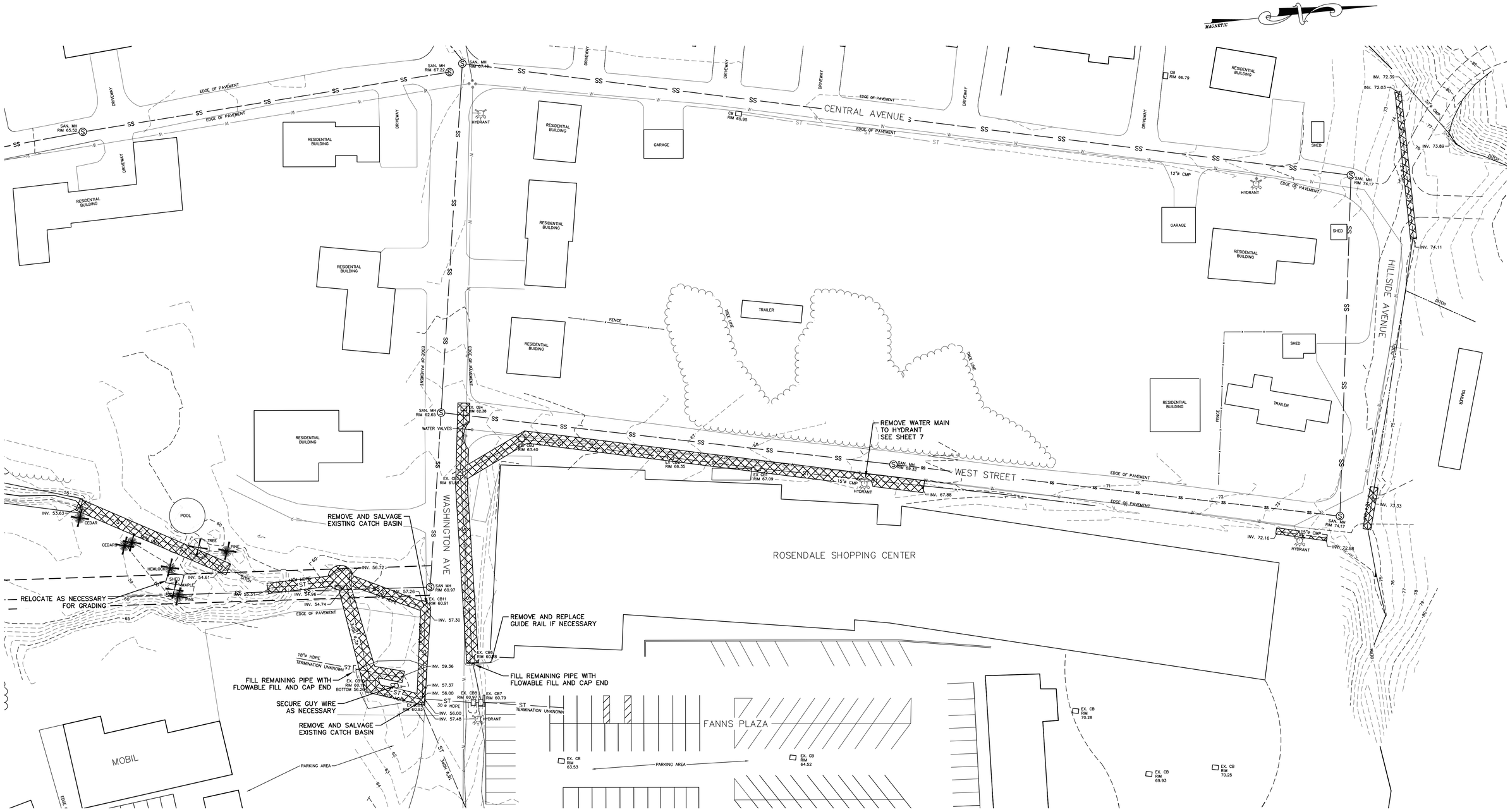
EXISTING CONDITIONS 2
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TS-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		4 OF 16
	DWG RJS	CHK JEM	



SELECTIVE DEMOLITION PLAN

SCALE: 1" = 30'

SELECTIVE DEMOLITION PLAN
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TS-171

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	PROPOSED DEMOLITION
	PROPOSED TREE REMOVAL

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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER BENNO M. LARIOS 058741 STATE OF NEW YORK

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WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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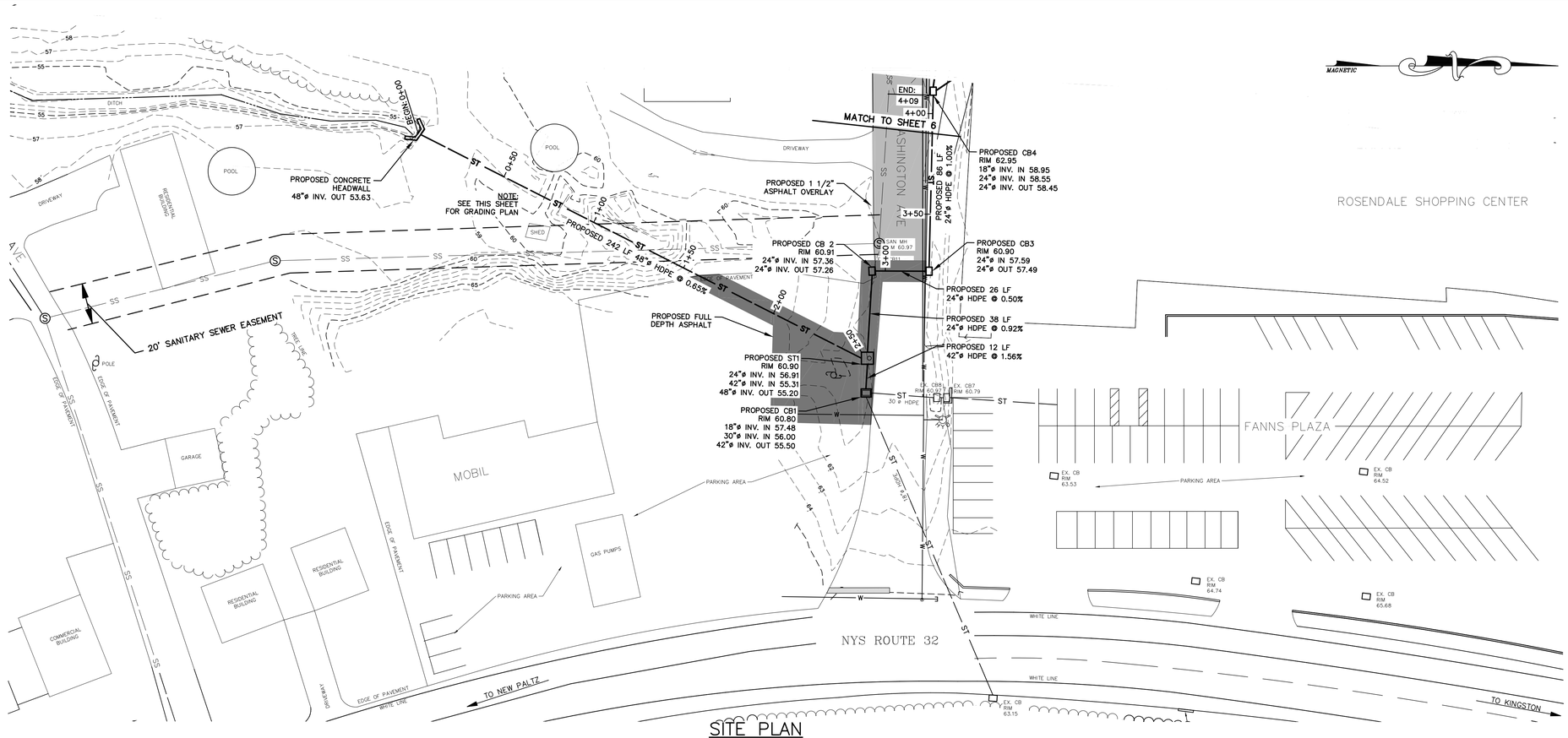
BRINNER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

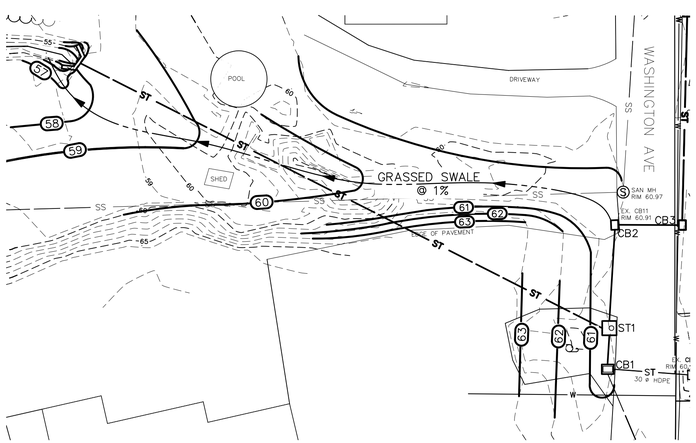
SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		5 OF 16
	DWG RJS	CHK JEM	

DRAINAGE STRUCTURE SCHEDULE					
STRUCTURE	TYPE (ID DIMENSIONS)	RIM ELEV. (FT)	INSIDE HEIGHT (FT)	STORM PIPING	INVERT ELEV. (FT)
ST1	6'x5' MANHOLE W 24" COVER	60.90	6 +/-	24"Ø HDPE IN	56.91
				42"Ø HDPE IN	55.31
				48"Ø HDPE OUT	55.20
CB1	4'x5' CATCH BASIN W F&G	60.80	6 +/-	18"Ø HDPE IN	57.48
				30"Ø HDPE IN	56.00
				42"Ø HDPE OUT	55.50
CB2	4'x4' CATCH BASIN W F&G	60.91	4 +/-	24"Ø HDPE IN	57.36
				24"Ø HDPE OUT	57.26
CB3	4'x4' CATCH BASIN W F&G	60.90	4 +/-	24"Ø HDPE IN	57.59
				24"Ø HDPE OUT	57.49
CB4	4'x4' CATCH BASIN W F&G	62.95	5 +/-	18"Ø HDPE IN	58.95
				24"Ø HDPE IN	58.55
				24"Ø HDPE OUT	58.45

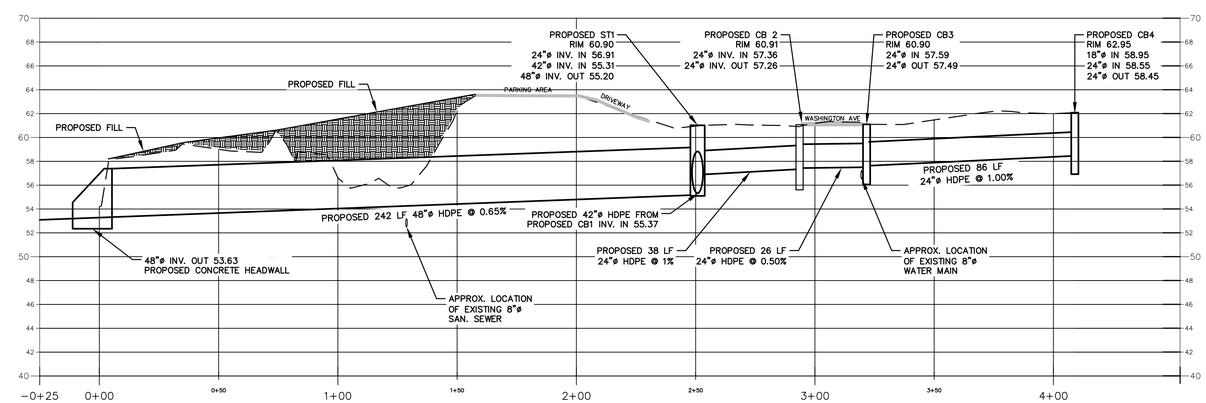
NOTES:
1. SEE PLAN AND PROFILE DRAWINGS FOR ORIENTATION OF PIPES.
2. ALL 4' CB STRUCTURES SHALL HAVE 30" X 48" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #7585 F&G ASSEMBLY OR APPROVED EQUAL.
3. ALL 3' CB STRUCTURES SHALL HAVE 24" X 24" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #5423 F&G ASSEMBLY OR APPROVED EQUAL.



SITE PLAN
SCALE: 1" = 30'



GRADING PLAN
SCALE: 1" = 30'



PROFILE OF STORM SEWER
SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

PLAN AND PROFILE 1
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

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LEGEND

50	CONTOURS (MINOR)		UTILITY POLE	ST	PROPOSED STORM SEWER
52	CONTOURS (MAJOR)		EXISTING HYDRANT		PROPOSED CATCH BASIN
PL	PROPERTY LINE	EX. CB1	EXISTING CATCH BASIN	58	PROPOSED CONTOUR
SS	EXISTING SANITARY SEWER	S	SANITARY MANHOLE		PROPOSED FULL DEPTH ASPHALT PAVEMENT
ST	EXISTING STORM SEWER	M	MANHOLE		PROPOSED 1 1/2" ASPHALT OVERLAY
W	EXISTING WATER LINE				
	DITCH				
	APPROX. TREE LINE				
x	FENCE				

GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER V. FELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER BERNIE M. LARIOS 058747 STATE OF NEW YORK

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WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
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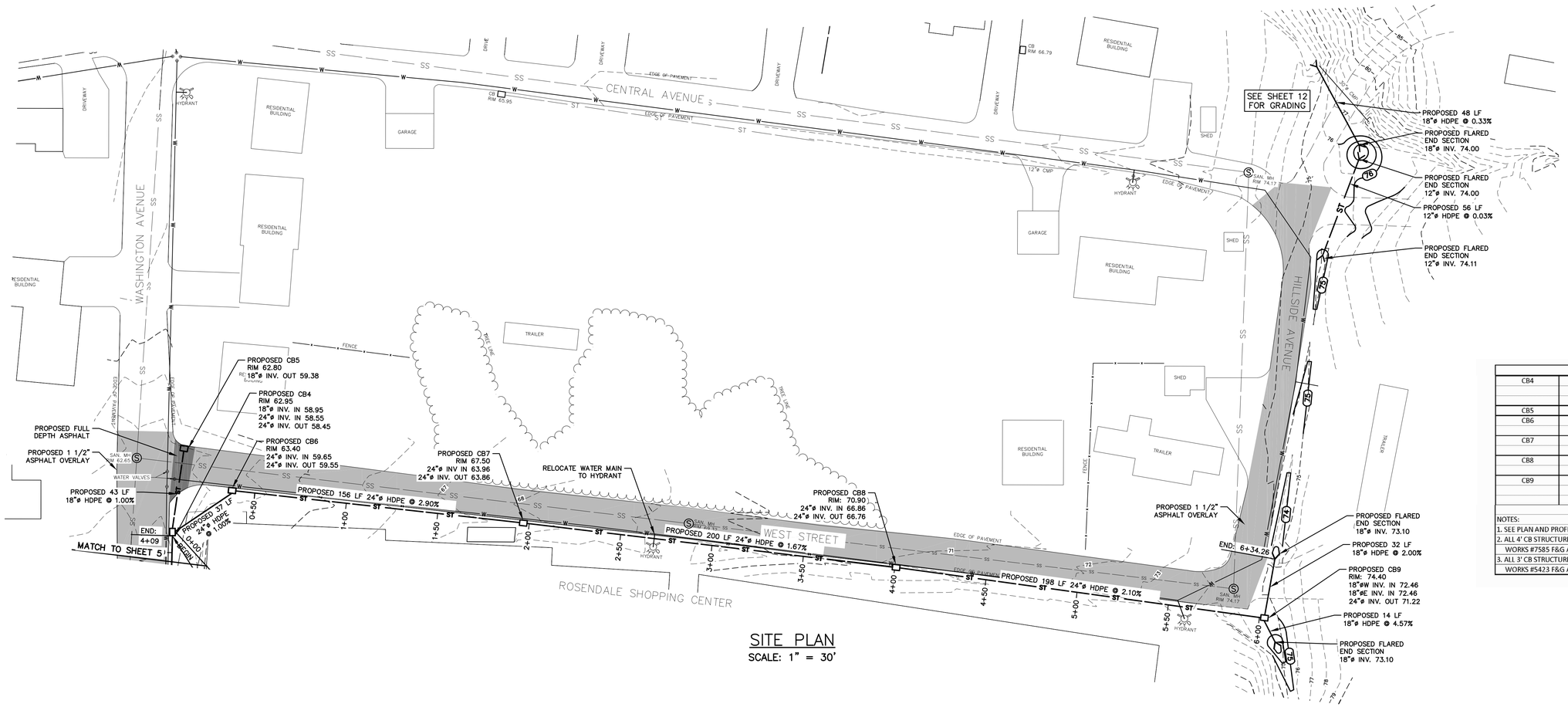
	DWG. RJS	CHK. JEM	



SITE PLAN

SCALE: 1" = 30'

DRAINAGE STRUCTURE SCHEDULE					
CB4	4'x4' CATCH BASIN W F&G	62.95	5 +/-	18"Ø HDPE IN	58.95
				24"Ø HDPE IN	58.55
				24"Ø HDPE OUT	58.45
CB5	3'X3' CATCH BASIN W F&G	62.80	4 +/-	24"Ø HDPE OUT	59.38
CB6	4'x4' CATCH BASIN W F&G	63.40	4 +/-	24"Ø HDPE IN	59.65
				24"Ø HDPE OUT	59.55
CB7	4'x4' CATCH BASIN W F&G	67.50	4 +/-	24"Ø HDPE IN	63.96
				24"Ø HDPE OUT	63.86
CB8	4'x4' CATCH BASIN W F&G	70.90	5 +/-	24"Ø HDPE IN	66.86
				24"Ø HDPE OUT	66.76
CB9	4'x4' CATCH BASIN W F&G	74.40	4 +/-	18"Ø HDPE IN	72.46
				18"Ø HDPE IN	72.46
				24"Ø HDPE OUT	71.22

NOTES:
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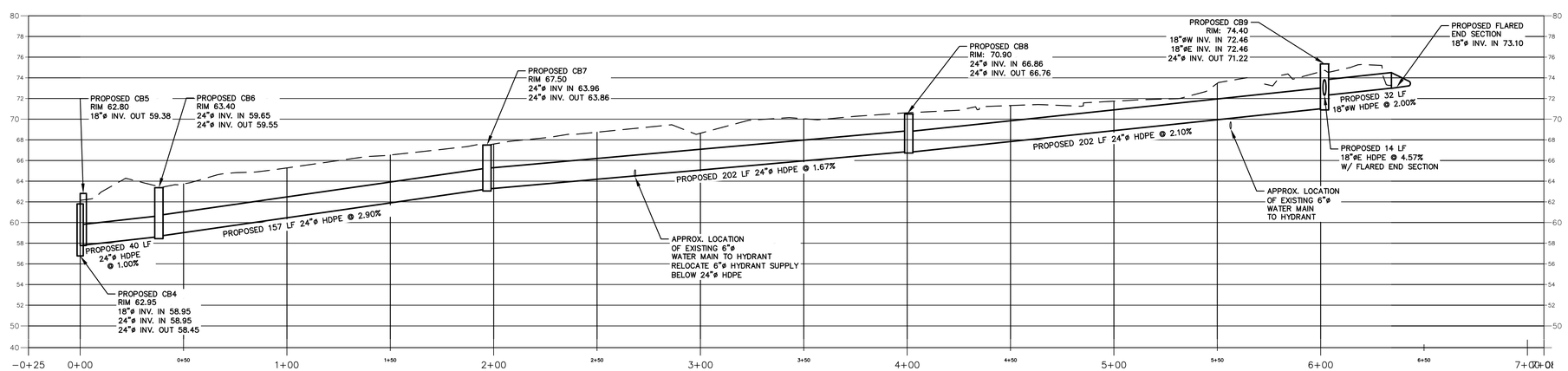
3. ALL 3' CB STRUCTURES SHALL HAVE 24" X 24" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #5423 F&G ASSEMBLY OR APPROVED EQUAL.



PROFILE OF STORM SEWER

SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR
- PROPOSED FULL DEPTH ASPHALT PAVEMENT
- PROPOSED 1 1/2" ASPHALT OVERLAY

GRAPHIC SCALE IN FEET
30 0 30

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PLAN AND PROFILE 2
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
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SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		7 OF 16
	DWG RJS	CHK JEM	

EXISTING CONDITIONS

SCALE: 1" = 30'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:

1. FIELD SURVEY PERFORMED BY BRINNIER AND LARIOS, P.C. ON JUNE 15, 2016, AUGUST 29, 2016 AND NOVEMBER 23, 2016.
2. USACE PONDING AREA BOUNDARY FROM USACE ROSENDALE FLOOD CONTROL PROJECT DRAWING NUMBER CC-RC-209, SHEET 9 OF 79

NOTE:

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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER SERVIS M. LARIOS 058747 STATE OF NEW YORK

Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

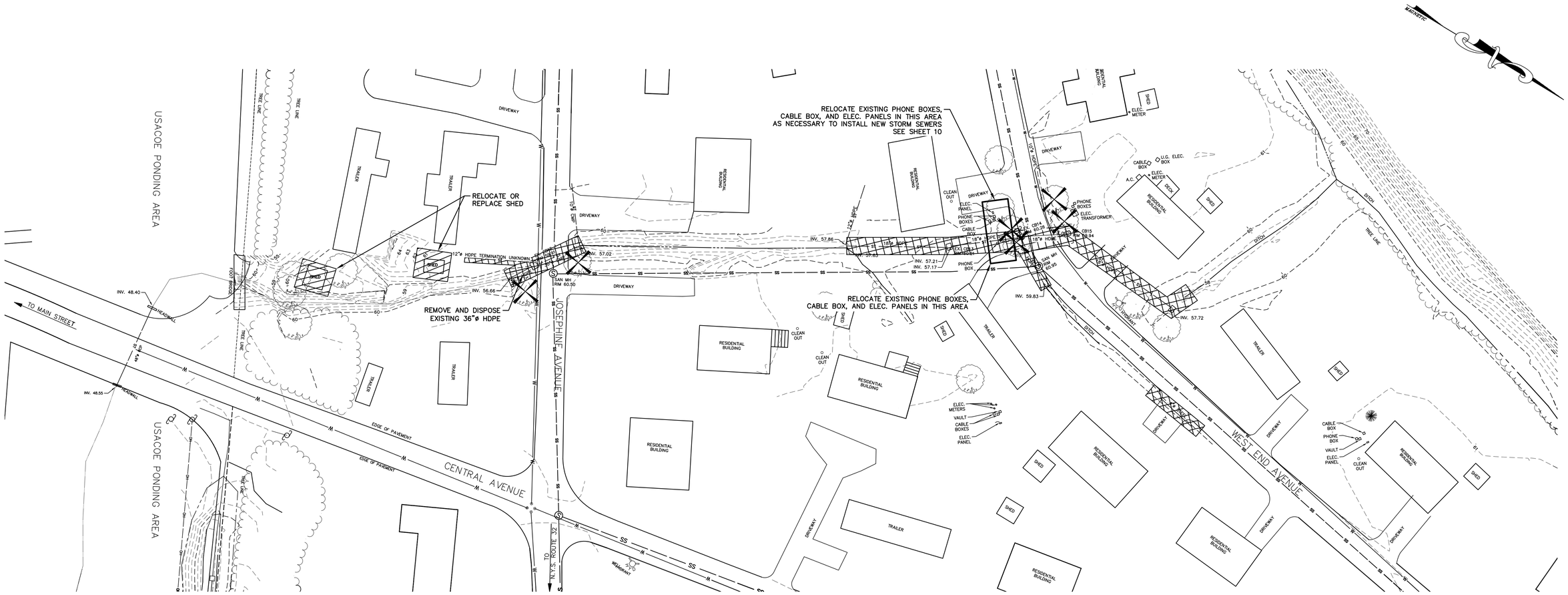
EXISTING CONDITIONS
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		8 OF 16
	DWG RJS	CHK JEM	



SELECTIVE DEMOLITION PLAN

SCALE: 1" = 30'

LEGEND

CONTOURS (MINOR)	UTILITY POLE
CONTOURS (MAJOR)	EXISTING HYDRANT
PROPERTY LINE	EXISTING CATCH BASIN
EXISTING SANITARY SEWER	SANITARY MANHOLE
EXISTING STORM SEWER	MANHOLE
EXISTING WATER LINE	PROPOSED DEMOLITION
DITCH	PROPOSED TREE REMOVAL
APPROX. TREE LINE	
FENCE	

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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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SELECTIVE DEMOLITION PLAN
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
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NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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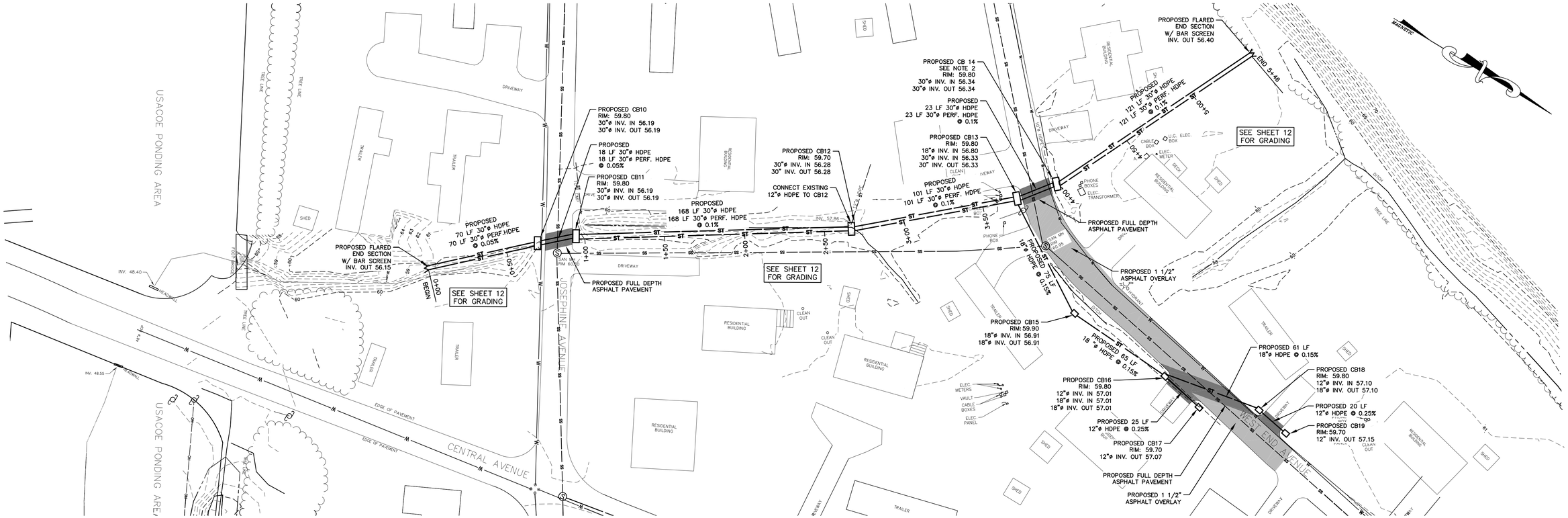
SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		9 OF 16
	DWG RJS	CHK JEM	

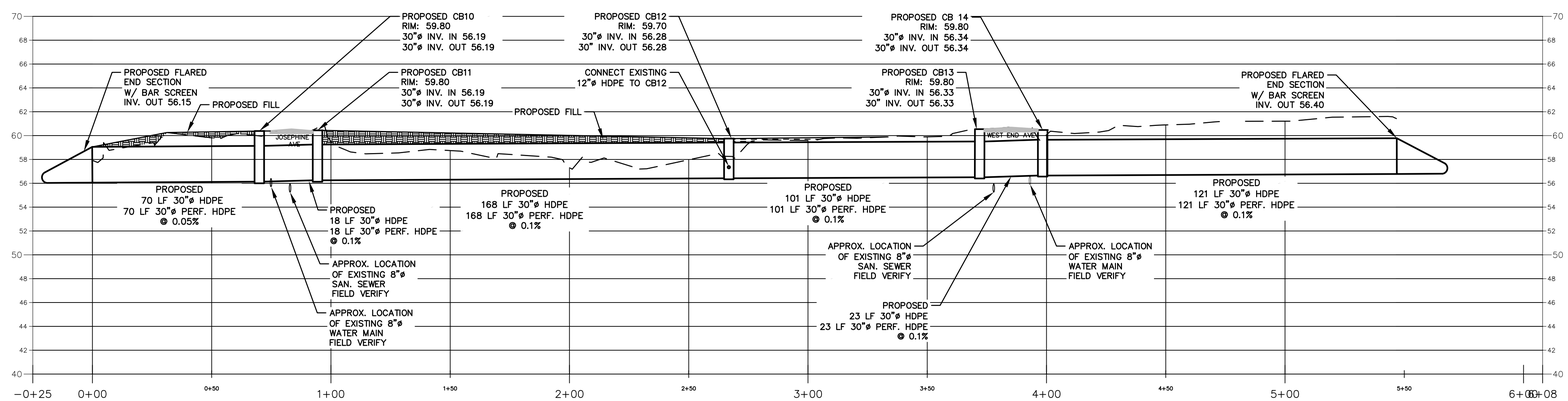


SITE PLAN

SCALE: 1" = 30'

DRAINAGE STRUCTURE SCHEDULE					
CB9	4'x4' CATCH BASIN W F&G	74.40	4 +/-	18"Ø HDPE IN	72.46
				18"Ø HDPE IN	72.46
				24"Ø HDPE OUT	71.22
CB10	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.19
CB11	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.19
CB12	4'X8' CATCH BASIN W F&G	59.80	4	12" HDPE IN	57.86
				2 - 30"Ø HDPE	56.28
CB13	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.33
CB14	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.34
CB15	3'X3' CATCH BASIN W F&G	59.90	4 +/-	18"Ø HDPE	56.91
CB16	4'X4' CATCH BASIN W F&G	59.80	3 +/-	18"Ø HDPE IN	57.01
				12"Ø HDPE IN	57.01
				18"Ø HDPE OUT	57.01
CB17	3'X3' CATCH BASIN W F&G	59.70	3 +/-	12"Ø HDPE OUT	57.05
CB18	3'X3' CATCH BASIN W F&G	59.80	3 +/-	12"Ø HDPE IN	57.10
				18"Ø HDPE OUT	57.10
CB19	3'X3' CATCH BASIN W F&G	59.70	3 +/-	12"Ø HDPE OUT	57.13

NOTES:
1. SEE PLAN AND PROFILE DRAWINGS FOR ORIENTATION OF PIPES.
2. ALL 4' CB STRUCTURES SHALL HAVE 30" X 48" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #7585 F&G ASSEMBLY OR APPROVED EQUAL.
3. ALL 3' CB STRUCTURES SHALL HAVE 24" X 24" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #5423 F&G ASSEMBLY OR APPROVED EQUAL.



PROFILE OF STORM SEWER

SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

LEGEND

50	CONTOURS (MINOR)		UTILITY POLE	ST	PROPOSED STORM SEWER
52	CONTOURS (MAJOR)		EXISTING HYDRANT		PROPOSED CATCH BASIN
PL	PROPERTY LINE	EX. CB1	EXISTING CATCH BASIN	50	PROPOSED CONTOUR
SS	EXISTING SANITARY SEWER	S	SANITARY MANHOLE		PROPOSED FULL DEPTH ASPHALT PAVEMENT
ST	EXISTING STORM SEWER	M	MANHOLE		PROPOSED 1 1/2" ASPHALT OVERLAY
W	EXISTING WATER LINE				
	DITCH				
	APPROX. TREE LINE				
X	FENCE				

NOTE:
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NOTE:
1. FIELD VERIFY TOP OF PIPE ELEVATIONS AT EACH SANITARY CROSSING PRIOR TO INSTALLING ANY STORM SEWER PIPING.
2. CB14 SHALL HAVE AN 8"HIGH X 12"LONG OPENING ON THE SOUTH SIDEWALL AT ELEV. 58.25 FEET.

GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. FELL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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PLAN AND PROFILE
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		10 OF 16
	DWG RJS	CHK JEM	

EXISTING CONDITIONS

SCALE: 1" = 40'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
℄	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:
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GRAPHIC SCALE IN FEET

40 0 40

LICENSED LAND SURVEYOR — CHRISTOPHER J. TELL — 49679 — STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER — DENNIS M. LARIOS — 058741 — STATE OF NEW YORK

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EXISTING CONDITIONS
MOUNTAIN SWALE
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE — ULSTER COUNTY — NEW YORK

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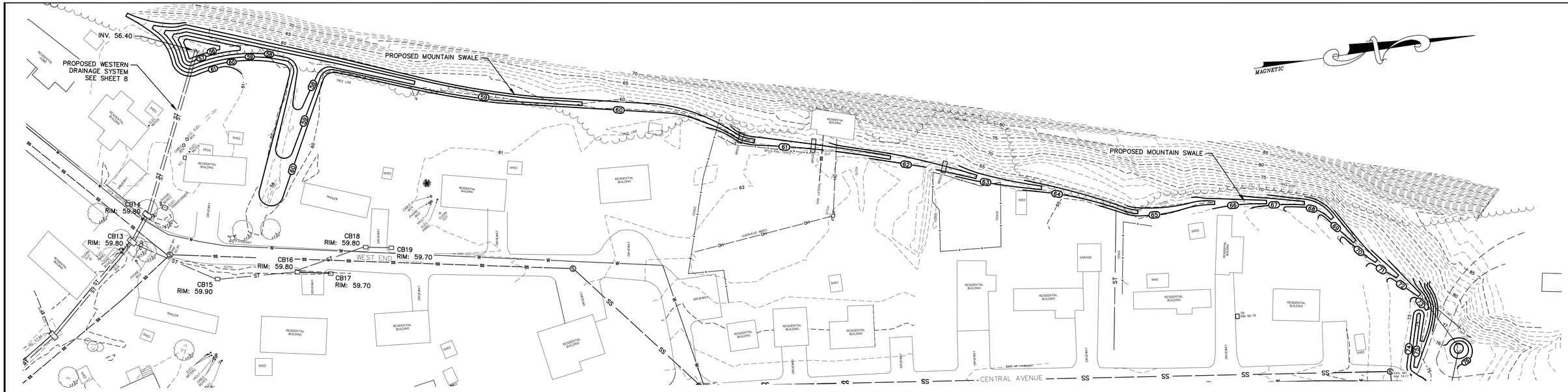
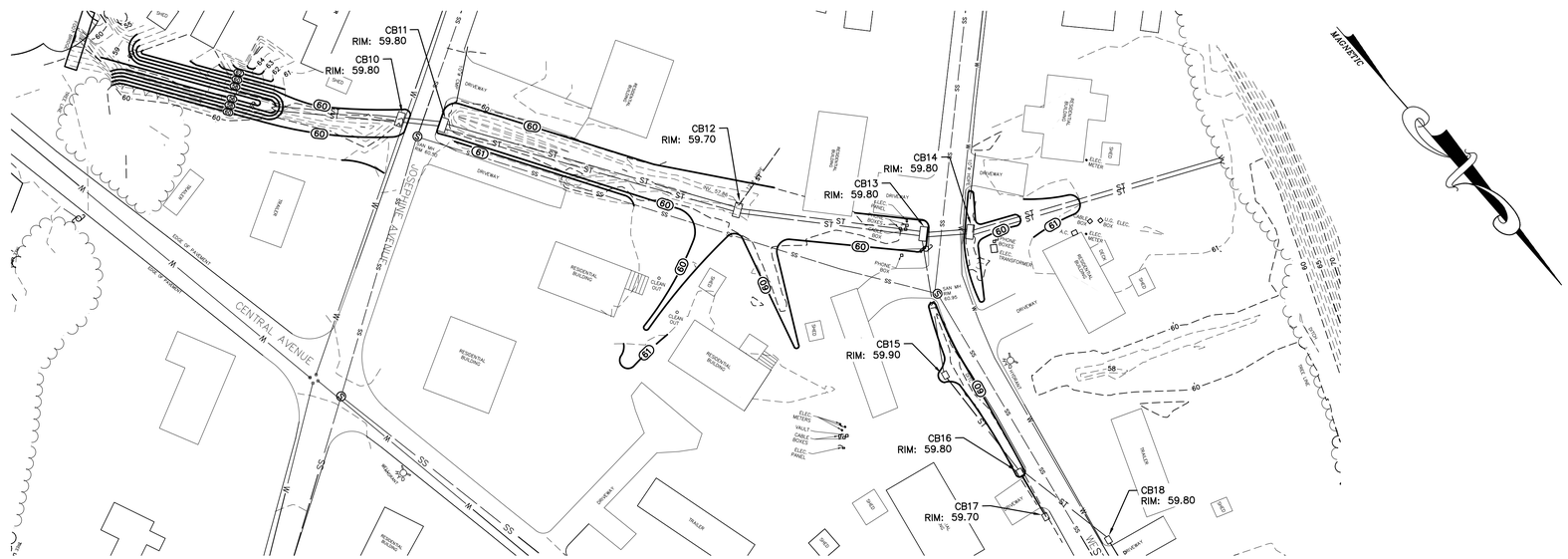
Phone: 845-338-7622 — Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 40'	FEB. 2017		11 OF 16
	DWG RJS	CHK JEM	



GRADING PLAN MOUNTAIN SWALE

SCALE: 1" = 40'



GRADING PLAN WESTERN DRAINAGE SYSTEM

SCALE: 1" = 40'

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR

NOTE:
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GRAPHIC SCALE IN FEET

40 0 40

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIE M. LARIOS 058747 STATE OF NEW YORK

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GRADING PLAN
WEST AND MOUNTAIN SWALE
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
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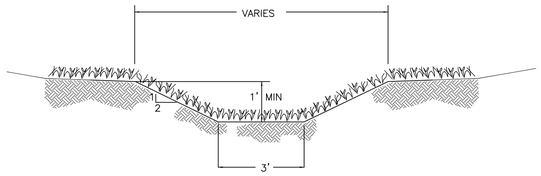
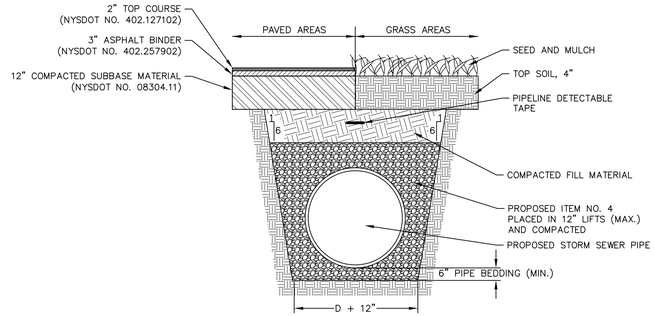
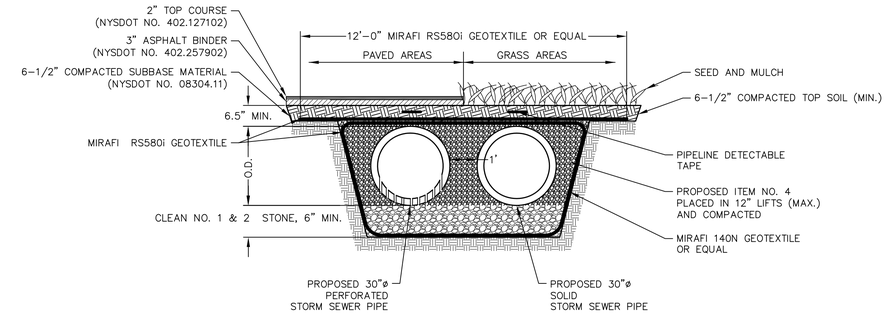


VEGETATION REQUIREMENTS FOR OPEN CHANNELS
SEED MIXTURE SHALL BE TALL FESCUE OR SMOOTH BROMEGRASS (0.45 LBS/1000 SF), KENTUCKY BLUEGRASS (0.6 LBS/1000 SF) OR PERENNIAL RYEGRASS (0.2 LBS/1000 SF). MULCH SEEDED AREAS. FERTILIZE, LIME AND MOW AS NEEDED TO MAINTAIN DENSE PROTECTIVE COVER.

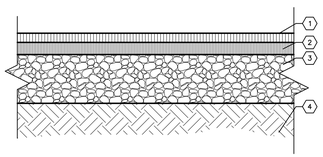
TYPICAL MOUNTAINSIDE SWALE SECTION
NOT TO SCALE



TYPICAL STORM SEWER TRENCH DETAIL
NOT TO SCALE



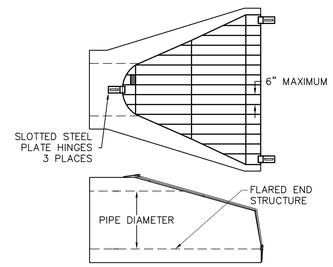
STORM SEWER TRENCH DETAIL
WESTERN DRAINAGE SYSTEM
NOT TO SCALE



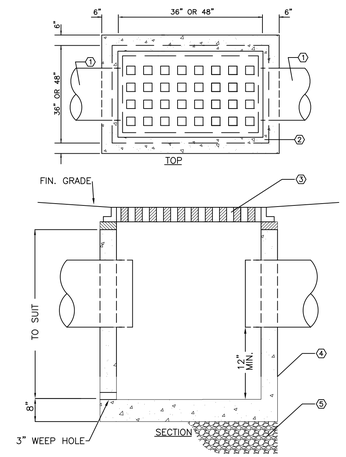
KEYED NOTES

1. 2" TYPE 6F2 ASPHALT WEARING SURFACE OVER TACK COAT. (NYSDOT #403.178202
2. 3" TYPE 3 BINDER OVER PRIME COAT. (NYSDOT #403.138902 M)
3. 12" (MIN.) COMPACTED ITEM #4 BASE MATERIAL. (NYSDOT #304.11 M)
4. WELL-DRAINED SUB-GRADE (COMPACT SUB-GRADE TO 95% MODIFIED PROCTOR),

TYPICAL PAVEMENT SECTION
NOT TO SCALE



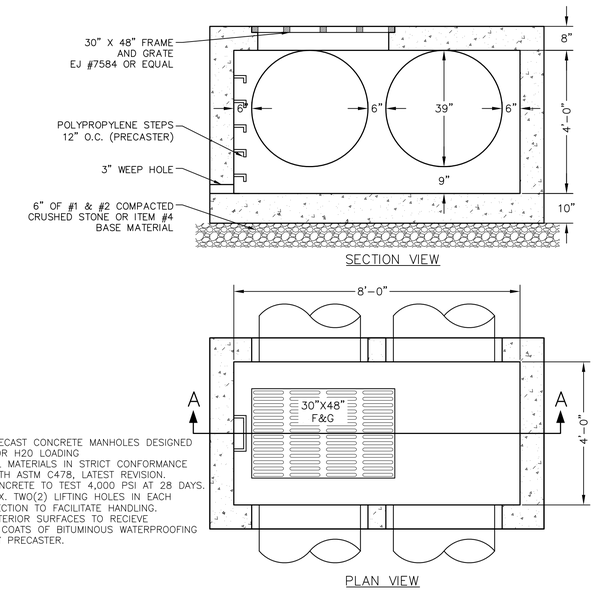
TYPICAL TRASH GUARD
FLARED END
NOT TO SCALE



KEYED NOTES

1. SEE SITE UTILITY PLAN FOR PIPE SIZES AND INVERTS.
2. PRECAST CONCRETE CATCH BASIN, 4,000 PSI CONCRETE, DESIGN FOR AASHTO H20 LOADING
3. HEAVY DUTY FRAME AND GRATE (AASHTO H20 LOADING),
   3'X3' CB – 24"X24" F&G. EJ#5423 OR EQUAL
   4'X4' CB – 30"X48" F&G. EJ#7584 OR EQUAL
   4'X5' CB – 30"X48" F&G. EJ#7584 OR EQUAL
4. EXTERIOR SURFACES TO RECEIVE 2 COATS OF BITUMINOUS WATERPROOFING BY PRECASTER
5. 6" OF #1 & #2 COMPACTED CRUSHED STONE OR ITEM #4 BASE MATERIAL

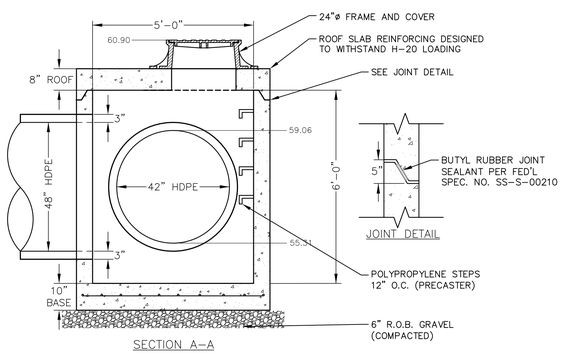
TYPICAL CATCH BASIN DETAIL
NOT TO SCALE



NOTES

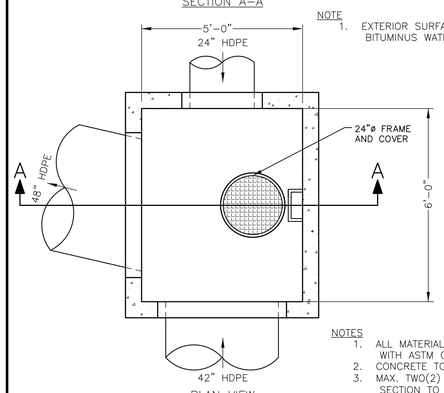
1. PRECAST CONCRETE MANHOLES DESIGNED FOR H20 LOADING
2. ALL MATERIALS IN STRICT CONFORMANCE WITH ASTM C478, LATEST REVISION.
3. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
4. MAX. TWO(2) LIFTING HOLES IN EACH SECTION TO FACILITATE HANDLING.
5. EXTERIOR SURFACES TO RECIEVE 2 COATS OF BITUMINOUS WATERPROOFING BY PRECASTER.

CATCH BASIN CB10–CB14 DETAIL
NOT TO SCALE



NOTE

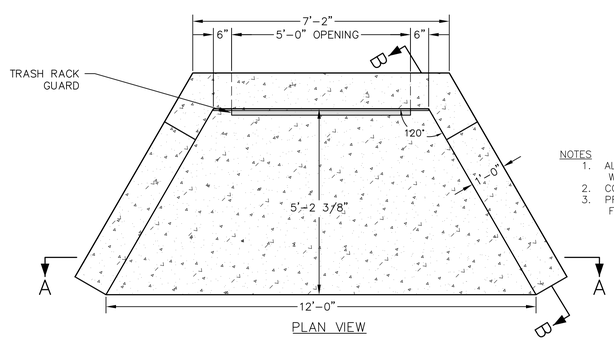
1. EXTERIOR SURFACES TO RECEIVE 2 COATS OF BITUMINUS WATERPROOFING BY PRECASTER.



NOTES

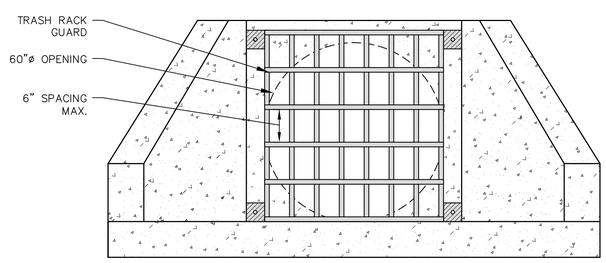
1. ALL MATERIALS IN STRICT CONFORMANCE WITH ASTM C478, LATEST REVISION.
2. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
3. MAX. TWO(2) LIFTING HOLES IN EACH SECTION TO FACILITATE HANDLING.

STORM SEWER ST1 MANHOLE
NOT TO SCALE

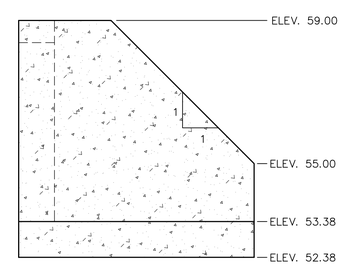


NOTES

1. ALL MATERIALS IN STRICT CONFORMANCE WITH ASTM C478, LATEST REVISION.
2. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
3. PROVIDE LIFTING HOLES AS APPROPRIATE TO FACILITATE HANDLING AND PLACEMENT



SECTION A–A



SECTION B–B

PRECAST 48"ø PIPE HEADWALL, WING WALLS, APRON AND TRASH RACK
NOT TO SCALE

LICENSED LAND SURVEYOR — CHRISTOPHER J. HILL — 49679 — STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER — DENNIS M. LARIOS — 058747 — STATE OF NEW YORK

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DETAILS
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE — ULSTER COUNTY — NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE — KINGSTON, N.Y.
Phone: 845-338-7622 — Fax: 845-338-7660

SCALE	DATE		SHEET NO.
N.T.S.	FEB. 2017		13 OF 16
	DWG RJS	CHK JEM	

EROSION & SEDIMENT CONTROL NOTES:

ALL CONSTRUCTION ACTIVITIES INVOLVING THE REMOVAL OR DEPOSITION OF SOILS ARE TO BE PROVIDED WITH APPROPRIATE PROTECTIVE MEASURES TO MINIMIZE EROSION OF, AND CONTAIN SEDIMENT WITHIN, THE AREA UNDER DEVELOPMENT. THOSE METHODS DEEMED MOST EFFECTIVE ARE DESCRIBED BELOW.

1. FOLLOW THE CONSTRUCTION SCHEDULE OUTLINED ON THIS SHEET.
2. CLEAR ONLY WHAT IS REQUIRED FOR THE IMMEDIATE CONSTRUCTION ACTIVITY. CLEARING AND GRADING SHOULD BE DONE AS CONSTRUCTION PROGRESSES. ONLY THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME DURING CONSTRUCTION.
3. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE.
4. PRIOR TO THE START OF CONSTRUCTION, TEMPORARY SILT FENCING AND/OR OTHER APPROVED DEVICES SHALL BE INSTALLED WHERE DEEMED NECESSARY TO PREVENT SOIL MIGRATION INTO WATER COURSES, WETLANDS, STORM DRAINAGE SYSTEMS, AND OFF SITE. SEE SILTATION CONTROL NOTES FOR INSTALLATION AND MAINTENANCE OF SILT FENCING.
5. WHENEVER POSSIBLE, SITE CONSTRUCTION ACTIVITIES SHALL START AT THE NEAREST POINT UPSLOPE OF THE EROSION CONTROL DEVICE, AND PROCEED TO ACTIVITIES FURTHER UPSLOPE.
6. SILT FENCING/TRAPS SHALL BE CLEANED OUT WHEN ACCUMULATED SEDIMENT HAS REDUCED THE CAPACITY OF THE TRAP BY 50%. SEDIMENT REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF IN A MANNER WHICH PREVENTS IT FROM ENTERING THE TRAP AGAIN.
7. WHEN LAND IS EXPOSED DURING DEVELOPMENT, THE PERIOD OF EXPOSURE SHALL BE KEPT TO A MINIMUM. IF PERMANENT VEGETATION, PAVEMENT, AND/OR STRUCTURES ARE NOT COMPLETED WITHIN 14 DAYS, STRAW MULCH (OR OTHER APPROVED MATERIAL) SHALL BE SPREAD TO TEMPORARILY COVER EXPOSED SOILS.
8. NO PERMITTED CONSTRUCTION ACTIVITIES SHALL TAKE PLACE WITHIN ANY WATERCOURSES OR WETLANDS UNTIL APPROPRIATE MEASURES ARE TAKEN TO PROTECT AND/OR TEMPORARILY DIVERT FLOWING WATER PAST THE WORK AREA AND DOWNSTREAM SEDIMENT CONTROLS ARE IN PLACE. IN GENERAL, THESE SEDIMENT CONTROLS SHALL NOT BE REMOVED UNTIL UPSTREAM ACTIVITY HAS BEEN SATISFACTORILY COMPLETED AND THE STREAM FLOWS CLEAR.
9. ALL TOPSOIL WHICH HAS BEEN STRIPPED AND STOCKPILED SHALL BE PLACED AT LEAST 50 FEET FROM ANY WETLAND OR WATERCOURSE. THE TOE OF THE STOCKPILE SHALL BE PROTECTED IN A MANNER WHICH PREVENTS SOIL FROM MIGRATING.
10. RING ANY TEMPORARY STOCKPILES WITH SILT FENCE TO PREVENT EROSION OF THE PILE.
11. ALL TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL REMAIN IN PLACE AND BE MAINTAINED REGULARLY IN PROPER FUNCTIONING CONDITION UNTIL ALL AREAS EXPOSED DURING CONSTRUCTION HAVE BEEN SUITABLY STABILIZED WITH FINAL VEGETATIVE COVER, PERMANENT STRUCTURES, OR PAVEMENT.
12. THE CONTRACTOR SHALL COMPLY WITH THE PROVISIONS OF ALL ENVIROMENTAL/SPDES PERMITS ISSUED FOR THIS PROJECT AND LOCAL, STATE AND FEDERAL REGULATIONS.
13. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PREVENT CONTAMINATION OF THE EXISTING DRAINAGE SWALES BY SILT, SEDIMENT, FUELS, SOLVENTS, LIQUIDS, CONCRETE LEACHATE, OR ANY OTHER POLLUTANT ASSOCIATED WITH THE CONSTRUCTION OF THIS PROJECT.

CONSTRUCTION SCHEDULE:

1. FLAG THE LIMIT OF DISTURBANCE TO DELINEATE THE WORK AREAS.
2. HOLD A PRE–CONSTRUCTION MEETING PRIOR TO STARTING CONSTRUCTION.
3. INSTALL TEMPORARY STABILIZED CONSTRUCTION ENTRANCE.
4. INSTALL TEMPORARY SILT FENCING. SILT FENCE LOCATIONS AS DEPICTED ON PLANS ARE ILLUSTRATIVE. CONTRACTOR SHALL EXERCISE DILIGENCE WHEN INSTALLING SILT FENCE TO CAPTURE ALL SEDIMENT LADEN RUNOFF.
5. CLEAR AND ROUGH GRADE SITE IN THE AREAS OF IMMEDIATE CONSTRUCTION ACTIVITY ONLY.
6. STOCKPILE TOPSOIL. CONSTRUCT CHANNELS. BARE AREAS SHALL BE MULCHED SHOULD GRADING BE DISCONTINUED FOR MORE THAN 14 DAYS.
7. COMPLETE FINAL GRADING FOR SLOPE STABILIZATION.
8. COMPLETE FINAL GRADING. TOPSOIL CRITICAL AREAS AND PERMANENTLY VEGETATE, LANDSCAPE AND MULCH.
9. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AT LEAST ONCE EVERY (7) SEVEN CALENDER DAYS. NEEDED REPAIRS WILL BE MADE IMMEDIATELY. IF GREATER THAN 5 ACRES OF LAND IS DISTURBED AT ONE TIME, THE QUALIFIED INSPECTOR SHALL CONDUCT 2 SITE INSPECTIONS EVERY (7) SEVEN CALENDER DAYS.
10. AFTER THE SITE IS STABILIZED, REMOVE ALL TEMPORARY MEASURES AND INSTALL PERMANENT VEGETATION ON THE DISTURBED AREAS.

INSPECTIONS AND REPORTING:

1. FOLLOW ALL REQUIREMENTS OUTLINED IN THE SWPPP AND NYSDEC SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY, PERMIT NO. GP–0–15–002.

SILTATION CONTROL NOTES:

1. ALL SILTATION AND EROSION CONTROL STRUCTURES SHALL BE INSTALLED PRIOR TO ANY EXCAVATION AND AS ACCEPTABLE TO THE ENGINEER. SILT FENCE SHALL BE MAINTAINED FOR THE DURATION OF SAID WORK AND SHALL NOT BE REMOVED UNTIL APPROVED BY THE ENGINEER.

2. SILT FENCE SHALL CONSIST OF 24" HIGH GEOTEXTILE FABRIC (FILTER CLOTH) INSTALLED PARALLEL WITH THE TOE OF SLOPES AS INDICATED ON THE PLAN.

3. THE FABRIC SHALL BE FASTENED SECURELY AT THE TOP AND MID SECTION TO MIN. 3' LONG FENCE POSTS PLACED A MAX. OF 10' ON CENTER. THE BOTTOM 6" OF FABRIC SHALL BE LAID INTO THE TRENCH TO PREVENT UNDERMINING.

4. ADJOINING SECTIONS OF FILTER CLOTH SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.

5. SILT FENCING SHALL BE CLEANED OUT WHEN NEED, WHEN ACCUMULATED SEDIMENT HAS REDUCED THE CAPACITY BY 50% OR BULGES DEVELOP IN THE FABRIC. SEDIMENT REMOVED BE PROPERLY DISPOSED OF IN A MANNER WHICH PREVENTS IT FROM ENTERING THE AREA AGAIN.

6. SILT FENCE SHALL BE INSTALLED IN ALL AREAS THAT WILL HAVE AN EXCAVATION OPEN FOR MORE THAN 24 HOURS.

7. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF–PRODUCING RAINFALL AND NO LESS THAN ONCE EVERY WEEK. ANY NEED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED AND INSTALLED FOR THEIR APPROPRIATE PHASE OF THE PROJECT.

LANDSCAPING & VEGETATION ESTABLISHMENT NOTES:

1. ALL TEMPORARY SEEDING SHALL BE RYEGRASS (ANNUAL OR PERENNIAL) AT AN APPLICATION RATE OF 0.7 POUNDS PER 1,000 SQUARE FEET. MULCH IMMEDIATELY AFTER SEEDING WITH STRAW AT A RATE OF 2 BALES (90 lbs) PER 1,000 SQUARE FEET.
2. ALL OTHER SITE AREAS SPECIFIED FOR PERMANENT GRASS VEGETATION SHALL BE SEEDED WITH A MIXTURE OF PERENNIAL RYEGRASS SEED OF THE PENNFINE/JUNN VARIETY AT A RATE 0.10 POUNDS PER 1,000 SQUARE FOOT. EROSION AND SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE INSPECTED UNTIL FULL VEGETATION IS ESTABLISHED.
3. STRAW MULCH SHALL BE USED FOR ALL AREAS WHERE VEGETATION IS TO BE ESTABLISHED. MULCH SHALL BE INSTALLED IMMEDIATELY AFTER SEEDING AT A RATE OF 90–100 POUNDS PER 1,000 SQUARE FEET.

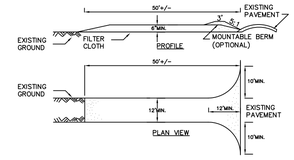
MAINTENANCE SCHEDULE:

MAINTENANCE DURING CONSTRUCTION

- ALL EROSION AND SEDIMENT CONTROL PRACTICES ALONG WITH TREE PROTECTION PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION EVERY SEVEN DAYS. ANY NEEDED REPAIRS WILL BE DONE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED AND INSTALLED FOR THEIR APPROPRIATE PHASE OF THE PROJECT.
- THE STABILIZED CONSTRUCTION ENTRANCES SHALL BE CLEANED OR REPLACED WHEN TRACKING OF SEDIMENT BECOMES EVIDENT.

LONG TERM MAINTENANCE

- WEED AND WATER TO ESTABLISH PERMANENT VEGETATION.
- REPLACEMENT/REHABILITATION SHALL BE MADE TO ANY ERODED AREAS.
- PROVIDE REPLACEMENT OF PLANTINGS, MULCH, WEEDING AND THINNING TO MAINTAIN THE DESIRED APPEARANCE.
- THE STORM WATER MANAGEMENT AREAS SHALL BE KEPT CLEAN OF TRASH AND DEBRIS.
- INSPECT AT LEAST TWICE DURING THE FIRST SIX MONTHS. SUBSEQUENTLY, INSPECTIONS SHOULD BE CONDUCTED ANNUALLY AND AFTER STORM EVENTS GREATER THAN 2".

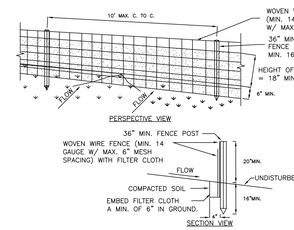


CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY–FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN EVENT.
10. STABILIZED CONSTRUCTION ENTRANCES SHALL BE CONSTRUCTED AND MAINTAINED AT SITE ENTRANCES DURING PHASE I CONSTRUCTION AND AT DRIVEWAY ENTRANCES DURING PHASE II CONSTRUCTION.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

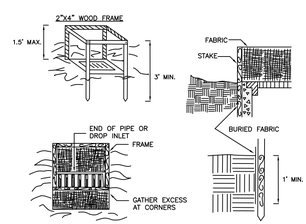


CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER–LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
6. SILT FENCE LOCATIONS AS DEPICTED ON PLANS ARE ILLUSTRATIVE. CONTRACTOR SHALL EXERCISE DILIGENCE WHEN INSTALLING SILT FENCE TO CAPTURE ALL SEDIMENT LADEN RUNOFF.

SILT FENCE DETAIL

NOT TO SCALE



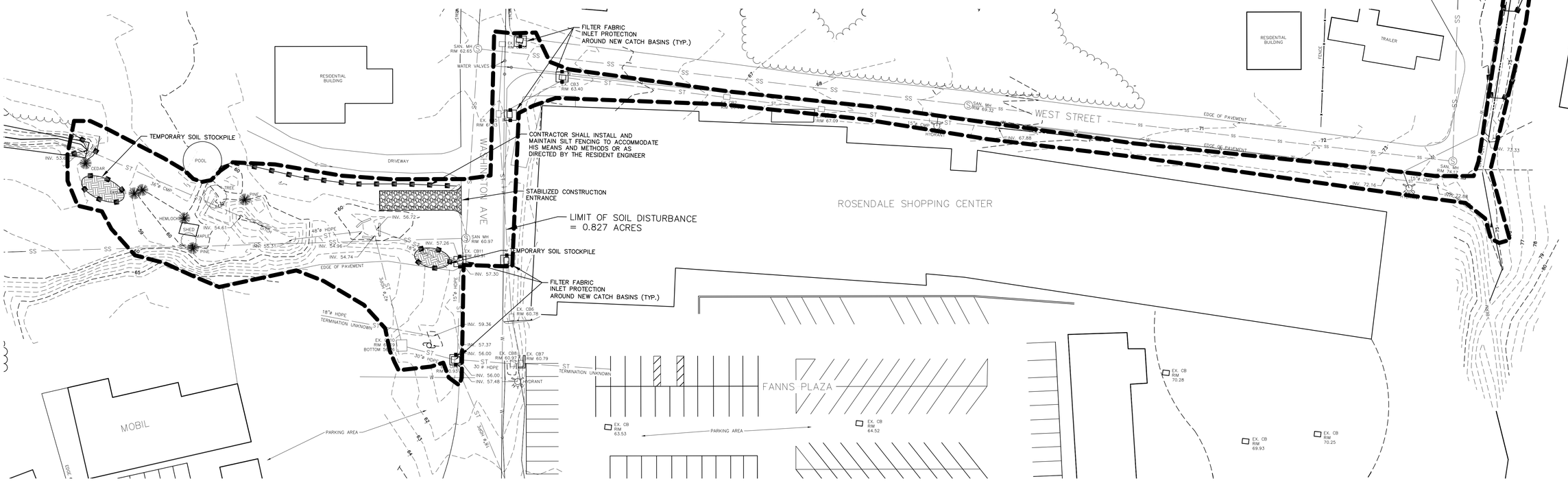
CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40–85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUN DRAINAGE AREA 1 ACRE

FILTER FABRIC INLET PROTECTION

NOT TO SCALE



EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 30'

EROSION AND SEDIMENT CONTROL PLAN – EAST
CONTRACT NO. TS–171

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	SILT FENCE AND CB INLET PROTECTION

NOTE:
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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. FELL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058741 STATE OF NEW YORK

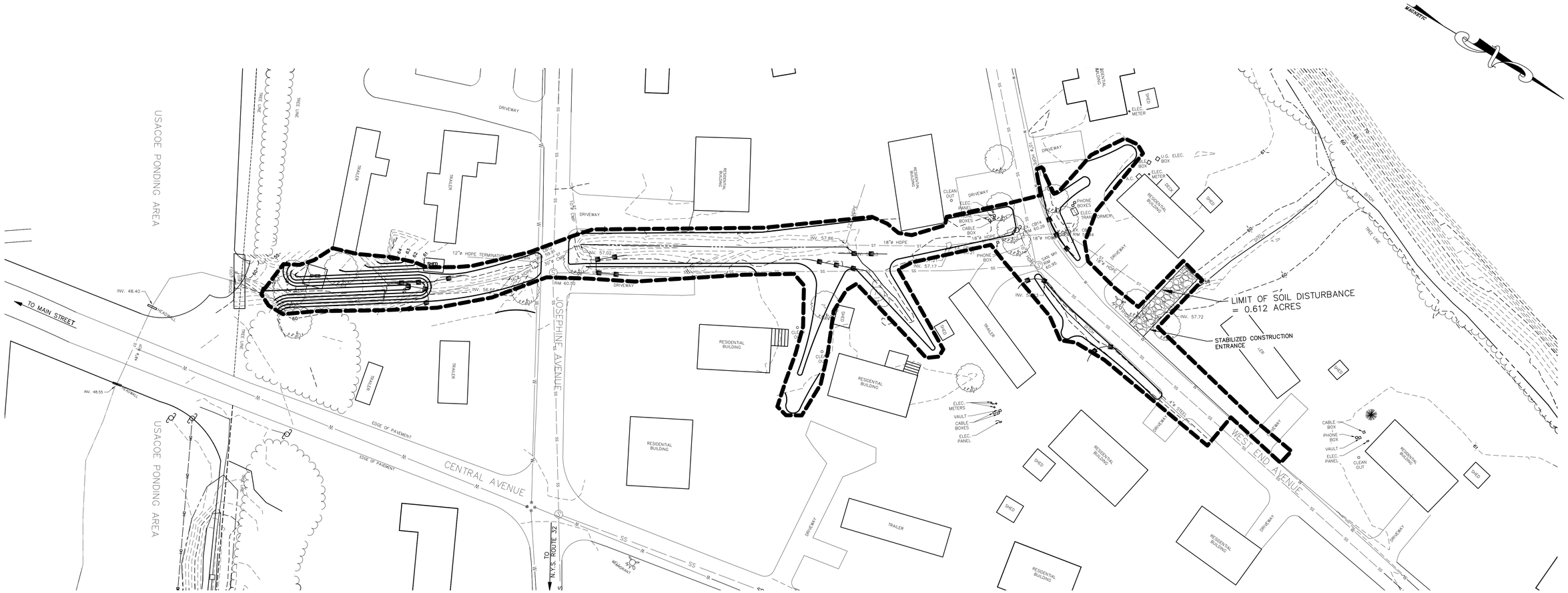
Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845–338–7622 Fax: 845–338–7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		14 OF 16
	DWG RJS	CHK JEM	



EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 30'

NOTE:

1. SEE SHEET 14 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
2. CONTRACTOR SHALL INSTALL AND MAINTAIN SILT FENCING TO ACCOMMODATE HIS MEANS AND METHODS OR AS DIRECTED BY THE OWNERS REPRESENTATIVE.
3. SEE SHEET 12 FOR GRADING PLAN.

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EX. CB1 EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- SILT FENCE AND CB INLET PROTECTION

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LICENSED PROFESSIONAL ENGINEER JENNIFER M. LARIOS 058741 STATE OF NEW YORK

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EROSION AND SEDIMENT
CONTROL PLAN – EAST
CONTRACT NO. TS–171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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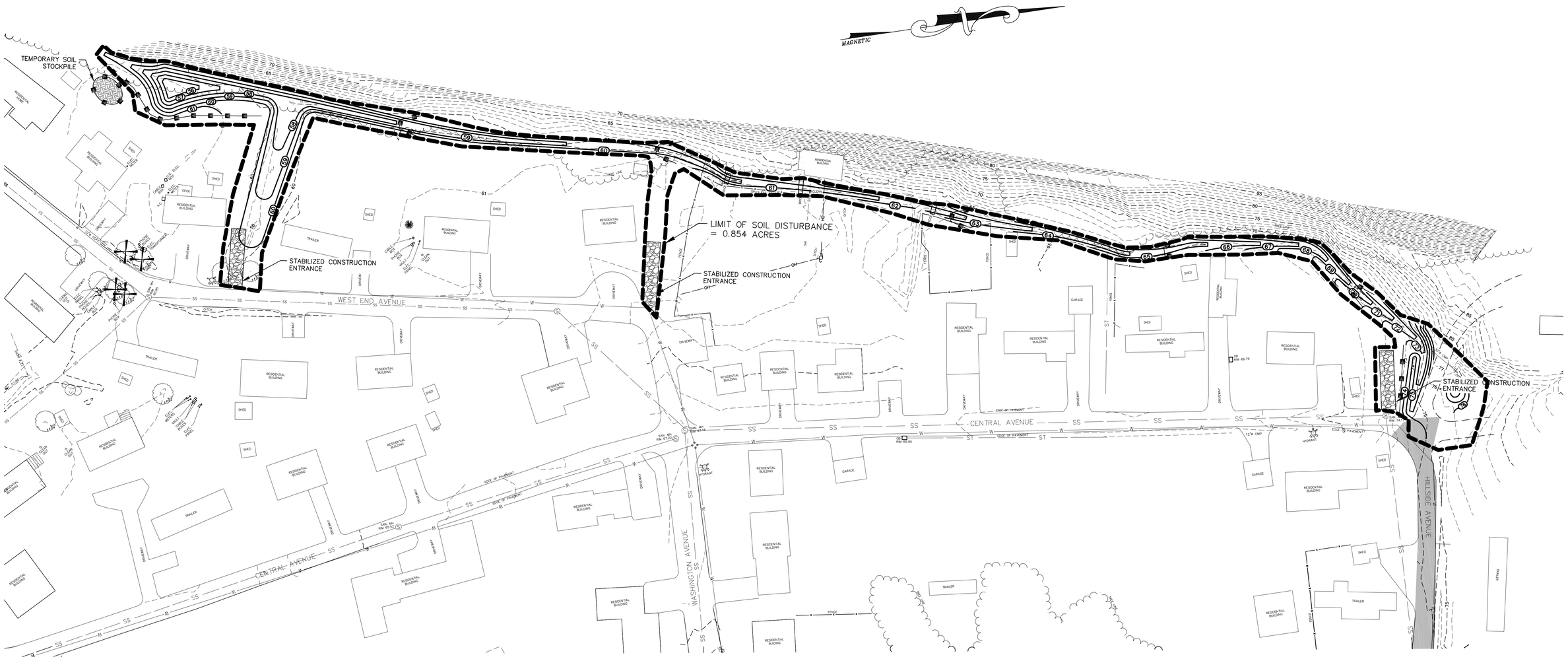

EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 40'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	SILT FENCE AND CB INLET PROTECTION

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NOTE:

1. SEE SHEET 14 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
2. CONTRACTOR SHALL INSTALL AND MAINTAIN SILT FENCING TO ACCOMMODATE HIS MEANS AND METHODS OR AS DIRECTED BY THE OWNERS REPRESENTATIVE.
3. SEE SHEET 12 FOR GRADING PLANS.

GRAPHIC SCALE IN FEET

40 0 40

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL #9679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIS M. LARIOS 058747 STATE OF NEW YORK

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EROSION AND SEDIMENT CONTROL PLAN – MOUNTAIN SWALE
CONTRACT NO. TS–171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
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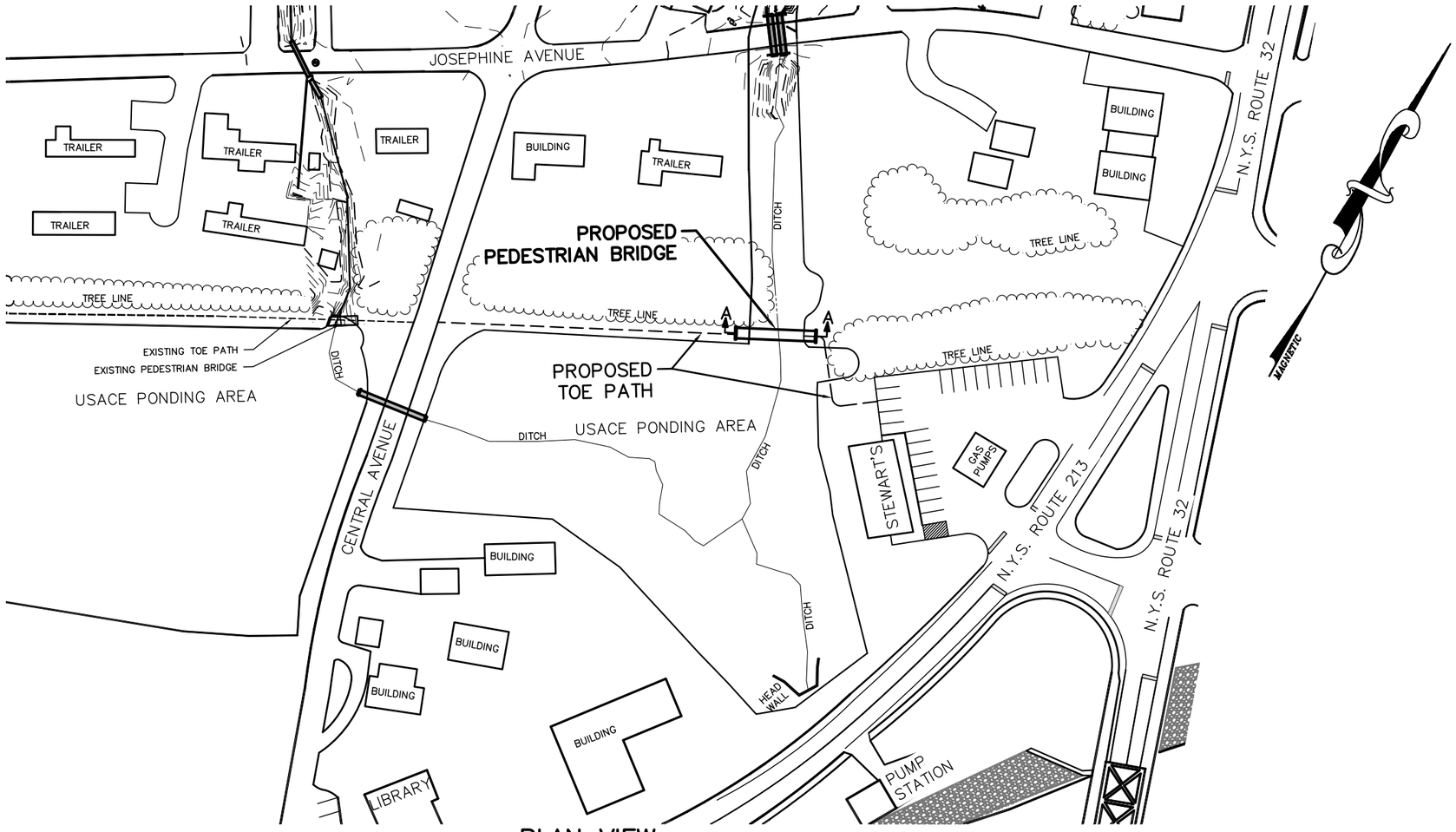
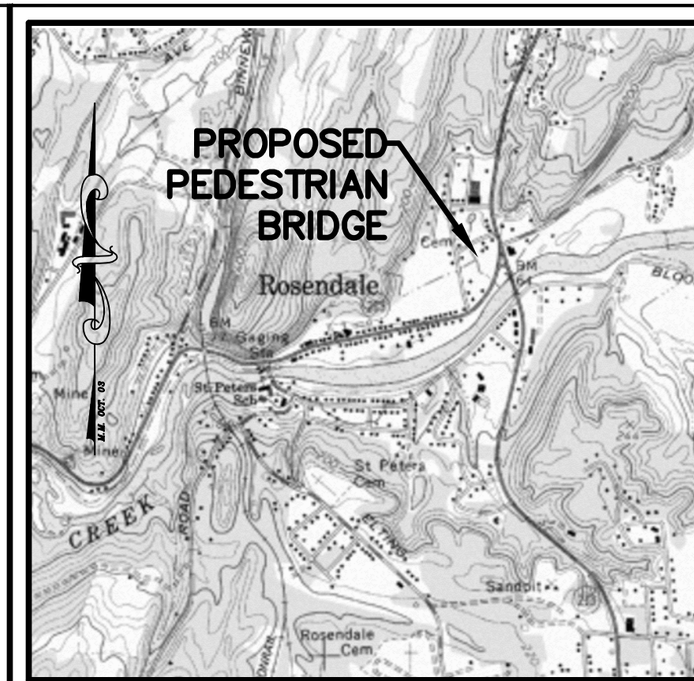
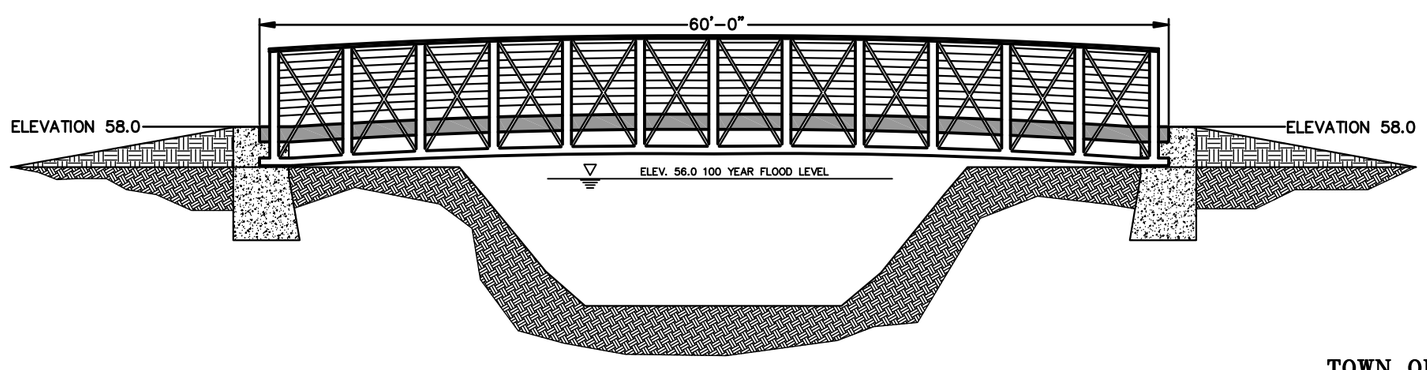


PLAN VIEW
SCALE: 1" = 100'



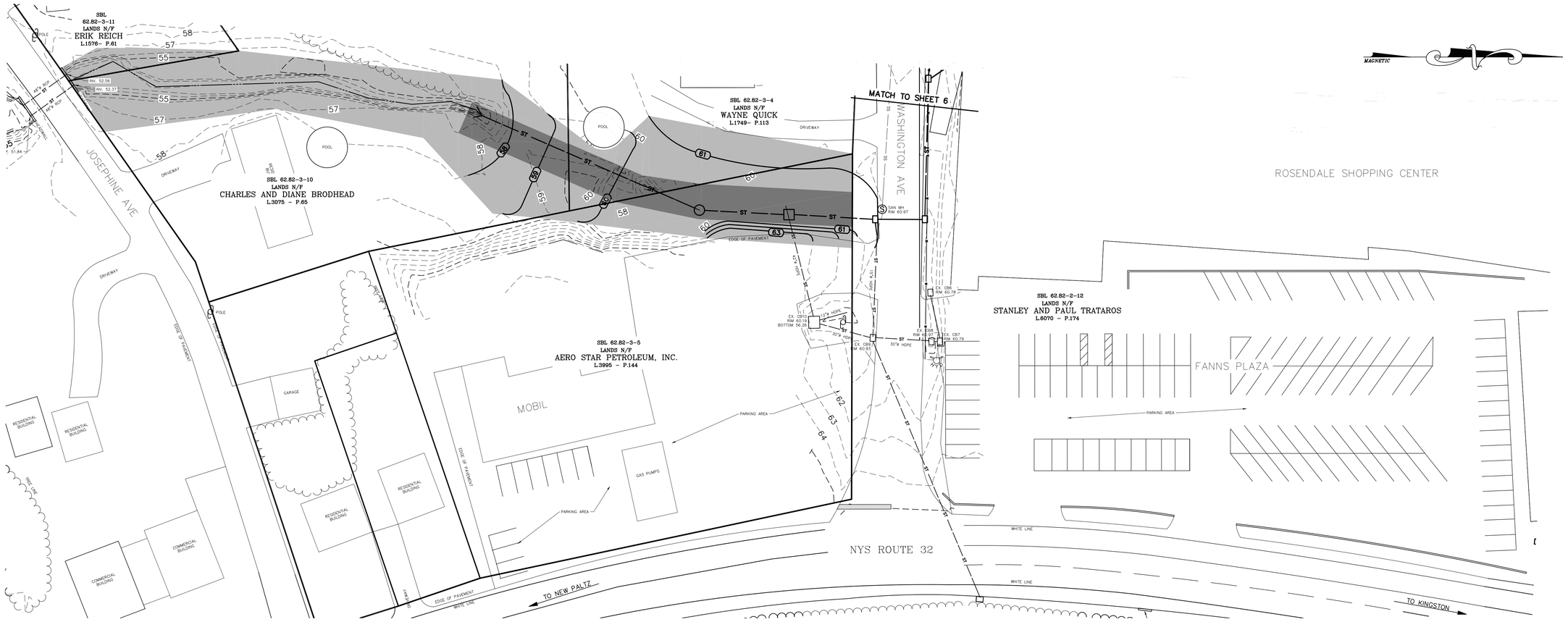
LOCATION MAP
ROSENDALE QUADRANGLE
7.5' MINUTE USGS TOPOGRAPHIC MAP
SCALE: 1" = 2000'



SECTION VIEW A-A
NOT TO SCALE

CHANGE ORDER NO. 1
PEDESTRIAN BRIDGE
WASHINGTON PARK
STORMWATER MITIGATION

TOWN OF ROSENDALE, ULSTER COUNTY, NEW YORK



SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
AERO STAR PETROLEUM INC 62.82-3-5	20' WIDE 0.05 ACRES	WIDTH VARIES 0.07 ACRES
WAYNE QUICK 62.82-3-4	20' WIDE 0.02 ACRES	WIDTH VARIES 0.08 ACRES
CHARLES AND DIANE BRODHEAD 62.82-3-10	20' WIDE 0.03 ACRES	WIDTH VARIES 0.25 ACRES
ERIK REICH 62.82-3-11	NONE	WIDTH VARIES 0.02 ACRES

LEGEND

- 50 — CONTOURS (MINOR)
- 52 — CONTOURS (MAJOR)
- ℄ — PROPERTY LINE
- ST — EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- x — FENCE
- UTILITY POLE
- EX. CB1 — EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- ST — PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- 62 — PROPOSED CONTOUR
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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DRAFT

REQUIRED EASEMENTS
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY

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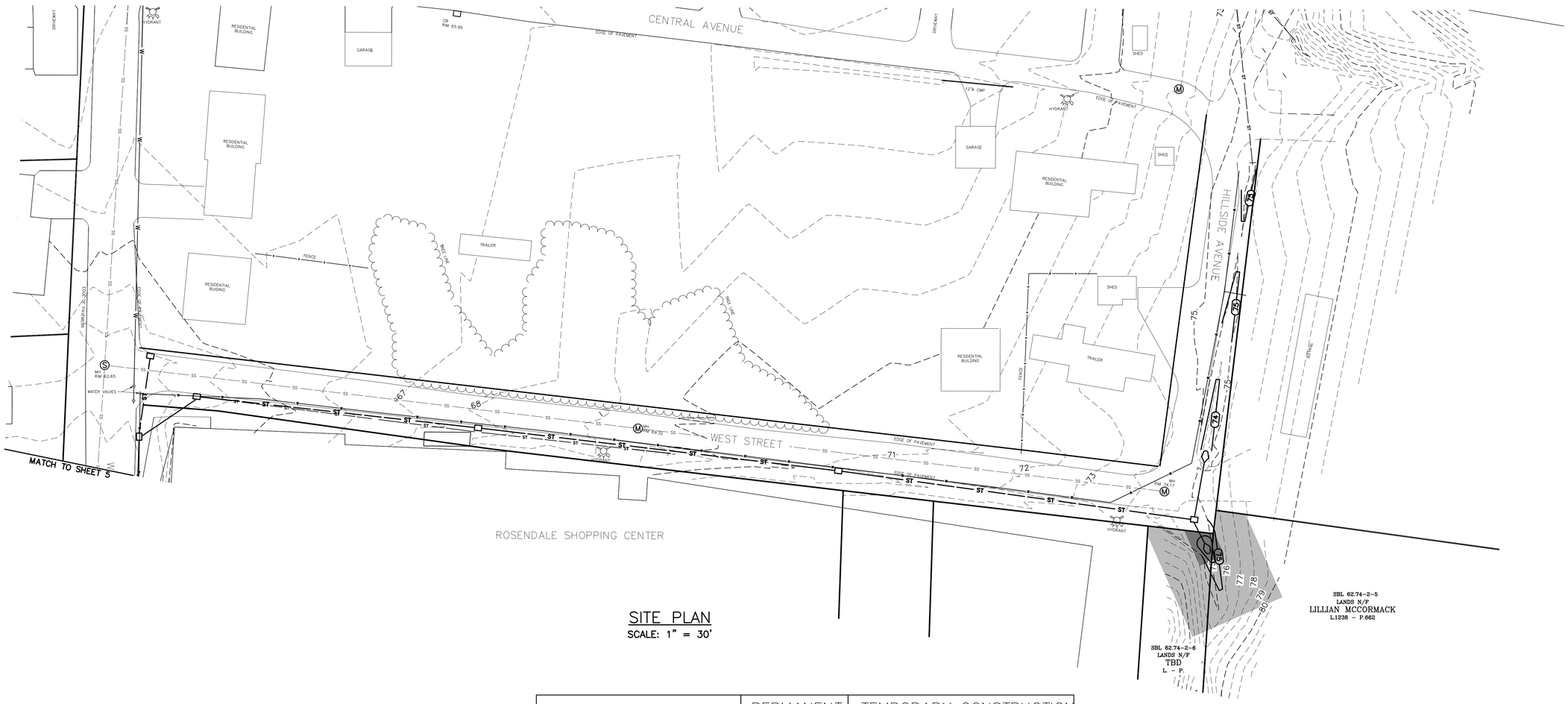
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE	SHEET NO.
1" = 30'	NOV. 2016	1 OF 4
	DWG RJS / CHK	

MAGNETIC



SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
LILLIAN MCCORMACK 62.74-2-5	20' WIDE 0.001 ACRES	WIDTH VARIES 0.04 ACRES
TBD 62.74-2-6	20' WIDE 0.004 ACRES	WIDTH VARIES 0.03 ACRES

DRAFT

REQUIRED EASEMENTS
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EX. CB1 EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR

GRAPHIC SCALE IN FEET

30 0 30

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LICENSED PROFESSIONAL ENGINEER BRIAN M. LARIOS 058741 STATE OF NEW YORK

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	DWG RJS	CHK	

SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
LAMONT VANWEZEMAAL 62.82-1-4	20' WIDE 0.04 ACRES	WIDTH VARIES 0.19 ACRES
WASHINGTON EST. DEV. CORP. 62.82-1-12.100	20' WIDE 0.25 ACRES	WIDTH VARIES 0.38 ACRES
CHARLES AND DIANE BRODHEAD 62.82-1-12.100	NONE	WIDTH VARIES 0.02 ACRES
LAURA AND CAMERON HENDRIX 62.82-1-13	NONE	WIDTH VARIES 0.04 ACRES

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EX. CB1 EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR
- PROPOSED MOUNTAIN SWALE
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIG M. LARIOS 058741 STATE OF NEW YORK

Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

DRAFT

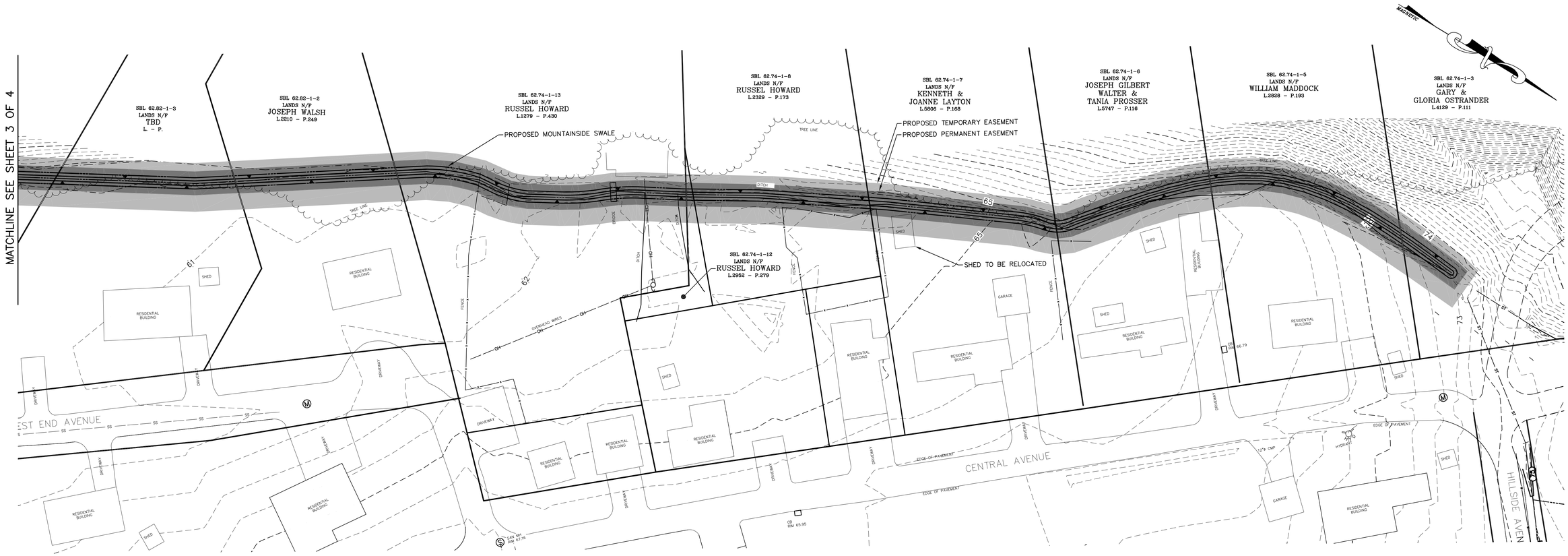
REQUIRED EASEMENTS
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

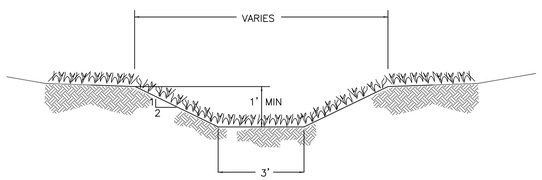
BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	NOV. 2016		3 OF 4
	DWG RJS	CHK	



SITE PLAN

SCALE: 1" = 30'



VEGETATION REQUIREMENTS FOR OPEN CHANNELS
SEED MIXTURE SHALL BE TALL FESCUE OR SMOOTH BROMEGRASS (0.45 LBS/1000 SF), KENTUCKY BLUEGRASS (0.6 LBS/1000 SF) OR PERENNIAL RYEGRASS (0.2 LBS/1000 SF). MULCH SEEDED AREAS. FERTILIZE, LIME AND MOW AS NEEDED TO MAINTAIN DENSE PROTECTIVE COVER.

TYPICAL MOUNTAINSIDE SWALE SECTION

NOT TO SCALE

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
TBD 62.82-1-3	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
JOSEPH WALSH 62.82-1-2	15' WIDE 0.03 ACRES	15' WIDE 0.03 ACRES
RUSSELL HOWARD 62.74-1-13	15' WIDE 0.06 ACRES	15' WIDE 0.06 ACRES
RUSSELL HOWARD 62.74-1-12	15' WIDE 0.001 ACRES	15' WIDE 0.002 ACRES
RUSSELL HOWARD 62.74-1-8	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
KENNETH & JOANNE LAYTON 62.74-1-7	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
JOSEPH GILBERT 62.74-1-6	15' WIDE 0.03 ACRES	15' WIDE 0.03 ACRES
WILLIAM MADDOCK 62.74-1-5	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
GARY & GLORIA OSTRANDER 62.74-1-3	15' WIDE 0.02 ACRES	15' WIDE 0.02 ACRES

DRAFT

REQUIRED EASEMENTS
MOUNTAINSIDE SWALE
CONTRACT NO. TR-171

LEGEND

- 50 — CONTOURS (MINOR)
- 52 — CONTOURS (MAJOR)
- R — PROPERTY LINE
- ST — EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- x — FENCE
- UTILITY POLE
- EX. CB1 — EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- ST — PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- 65 — PROPOSED CONTOUR
- PROPOSED MOUNTAIN SWALE
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

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	DWG RJS	CHK	

NEW YORK STATE OF OPPORTUNITY.
Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ROSE HARVEY
Commissioner

March 16, 2017

Ms. Dina Peoples
Geologist II
Tectonic Engineering
70 Pleasant Hill Road
Mountainville, NY 10953

Re: HUD
Washington Park Stormwater Mitigation Project
Town of Rosendale, Ulster County, NY
17PR01469

Dear Ms. Peoples:

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). We have reviewed the project in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

Based upon this review, the New York SHPO has determined that no historic properties will be affected by this undertaking.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Michael F. Lynch, P.E., AIA

Director, Division for Historic Preservation

Governor's Office of
Storm Recovery

ANDREW M. CUOMO
Governor

LISA BOVA-HIATT
Executive Director

March 20, 2017

Shannon Holsey, President
Stockbridge-Munsee Community, Band of the Mohicans
N8476 Moh He Con Nuck Road
Bowler, WI 54416

Re: Section 106 Compliance for the Washington Park Stormwater Mitigation Project, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, NY

Dear President Shannon Holsey:

Pursuant to the Disaster Relief Appropriations Act, 2013 (Public Law 113-2) and the Housing and Community Development Act (42 U.S.C. § 5301 et seq.), the Governor's Office of Storm Recovery (GOSR), an office of New York State Homes and Community Renewal's Housing Trust Fund Corporation as a recipient of Community Development Block Grant – Disaster Recovery ("CDBG-DR") funds from the United States Department of Housing and Urban Development ("HUD"), is serving as the entity responsible for compliance with the HUD environmental review procedures set forth in 24 CFR Part 58. GOSR is acting on behalf of HUD in providing the enclosed project information and inviting this discussion with your Community to respond with any concerns or comments.

GOSR processes environmental reviews for projects funded with HUD CDBG-DR on a case-by-case basis. In accordance with Section 101(d)(6)(B) of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470a), and its implementing regulations, 36 Code of Federal Regulations (CFR) Part 800, this letter serves as notification of the proposed action. This consultation is being sent to the Delaware Nation, Delaware Tribe of Indians, Mohawk Nation, Saint Regis Mohawk Tribe, and the Stockbridge-Munsee Community Band of Mohicans.

Area of Potential Effect: The Washington Park Stormwater Mitigation Project ("Proposed Project") involves the installation of culvert pipes, drainage ditches, swales, catch basins, a storm sewer manhole, and a pedestrian bridge in the Town of Rosendale, Ulster County, New York. Washington Park, the residential area located northwest of the intersection of New York State (NYS) Route 32 and NYS Route 213, has been subjected to historic, chronic flooding during large rain events. The proposed drainage improvements will effectively convey water during 50-year storm events and alleviate chronic flooding problems. The project location is identified on the enclosed street map and USGS topographic map.

Project Description: CDBG-DR funding is proposed for the improvement of two defined drainageways that cross through the Washington Park area. Runoff from a hill/mountain to the

northeast and runoff from the hillside adjacent to Fann's Plaza are conveyed by storm sewers to an extant United States Army Corps of Engineers (USACE) ponding area located on the south side of the Site (hereafter referred to as the Eastern Drainage System). Runoff from a hill/mountain to the west is conveyed via a swale at the base of the mountain to a storm sewer system that crosses under West End Avenue and Josephine Avenue to an existing USACE ponding area on the west side of Central Avenue (hereafter referred to as the Western Drainage System).

Improvement of the Eastern Drainage System will involve the construction of the following: a drainage swale along Hillside Avenue; a new storm sewer along West Street (from Hillside Avenue to Washington Avenue); a new storm sewer on Washington Avenue (from West Street to where it crosses under Washington Avenue); and a new storm sewer from Washington Avenue to the USACE ponding area. An existing USACE ponding area will also be regraded to provide a uniform alignment and cross sectional area that is consistent with the original USACE Rondout Creek Flood Control design. Proposed Eastern Drainage System improvements will include the installation of 181 linear feet (LF) of 48" diameter HDPE culvert pipe, 46 LF of 36" diameter HDPE culvert pipe, 745 LF of 24" diameter HDPE culvert pipe, 46 LF of 18" diameter HDPE culvert pipe, nine catch basins, and one storm sewer manhole. There are a total of eight trees located east of NYS Route 32 and south of Washington Avenue to be removed for project construction. These trees are situated between residential and commercial properties.

Improvement of the Western Drainage System will involve the construction of a drainage swale along the mountainside from the intersection of Central Avenue and Hillside Avenue to SBL# 62.82-1-4 (37 West End Avenue) and a new storm sewer from SBL# 62.82-1-4 (37 West End Avenue) to the existing USACE ponding area on the south side of Josephine Avenue. The Western Drainage System will be designed with a filter fabric lined trench and one perforated 30" HDPE pipe to provide positive relief of any potential shallow groundwater levels. Shallow groundwater would drain by gravity through a one-foot thick stone layer under the pipe and the perforated pipe. Proposed Western Drainage System improvements will include the installation of 1,002 LF of 30" diameter HDPE culvert pipe (dual culvert 501 LF) and five catch basins. The proposed mountainside drainage swale crosses through nine private properties. During construction, four trees will be removed from West End Avenue and two trees will be removed on Josephine Avenue, where the proposed drainage system would intersect the roadway. These trees are located in the right-of-way adjacent to residential properties. Temporary construction easements and permanent drainage maintenance easements will have to be obtained. The project engineering design plans are included with this letter for your review.

With this letter, GOSR respectfully submits for your review the attached documentation for the proposed project described herein. GOSR initiated consultation with the New York State Historic Preservation Office and their concurrence indicating that no historic properties will be affected, dated March 16, 2017, is included with this letter for your records. If the Area of Potential Effect encompasses historic properties of religious or cultural significance to your Community, please respond within 30 days or sooner. Additionally, please indicate if there are other sources of information or other parties, Nations, Tribes, or members of the public you believe should be included in the consultation process. Please respond by email or in writing to the address listed below.

Lori A. Shirley
Director, Bureau of Environmental Review and Assessment, GOSR
New York State Homes & Community Renewal
38-40 State St. 408N, Hampton Plaza
Albany, New York 12207

If you have any questions or require additional information regarding this request, please feel free to contact me at (518) 474-0755 or via email at Lori.Shirley@nyshcr.org. Thank you for your time and consideration.

Sincerely,

Lori A. Shirley
Director, Bureau of Environmental Review and Assessment, GOSR

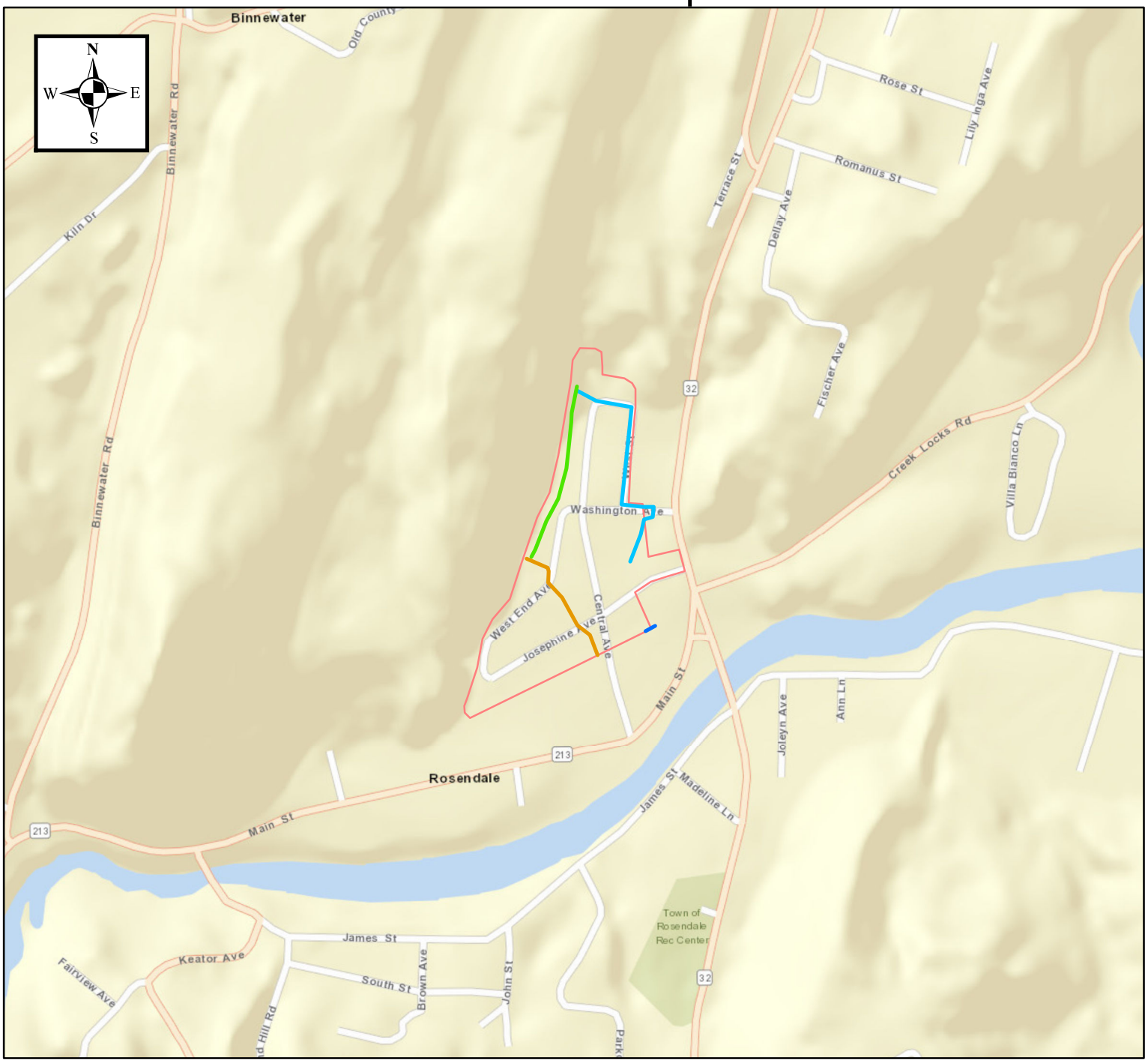
Enclosures:
Project Location Maps
Project Engineering Design Plans
NYSHPO No Affect Letter

Electronic letter sent to:
Bonney Hartley
THPO, New York Office
Stockbridge-Munsee Community, Band of the Mohicans
65 1st Street
Troy, NY 12180

Attachment 1

Street Map,
Topographic Map,
& Aerial Photograph

Location Map



TECTONIC

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0 500 1,000 2,000 Feet

1:10,000

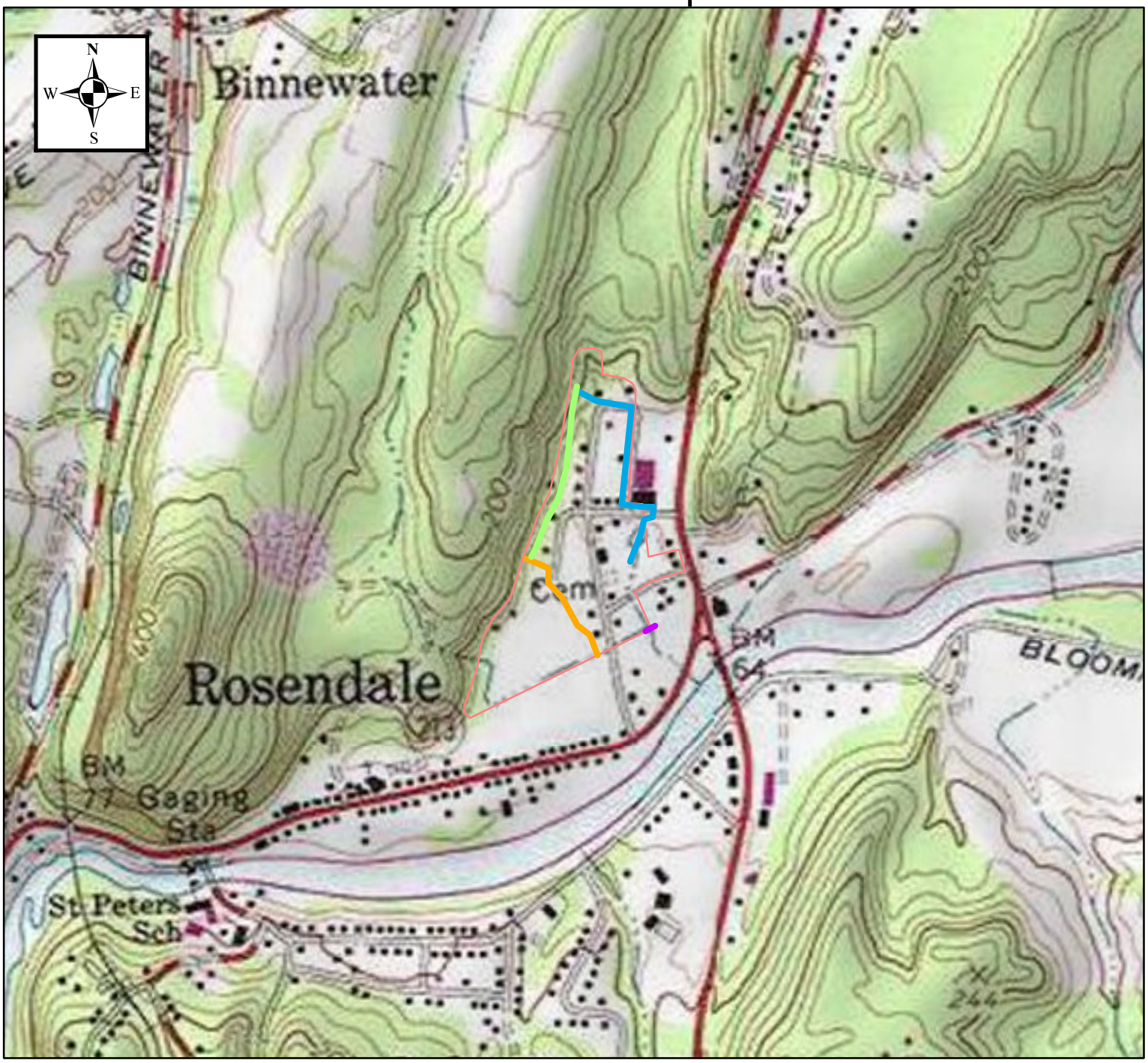
Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

Legend

Approximate Work Locations

- **Eastern Drainage System**
- **Mountain Swale**
- **Western Drainage System**
- **Pedestrian Bridge**
- **Washington Park (Approximate Boundary)**

Location Map



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Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

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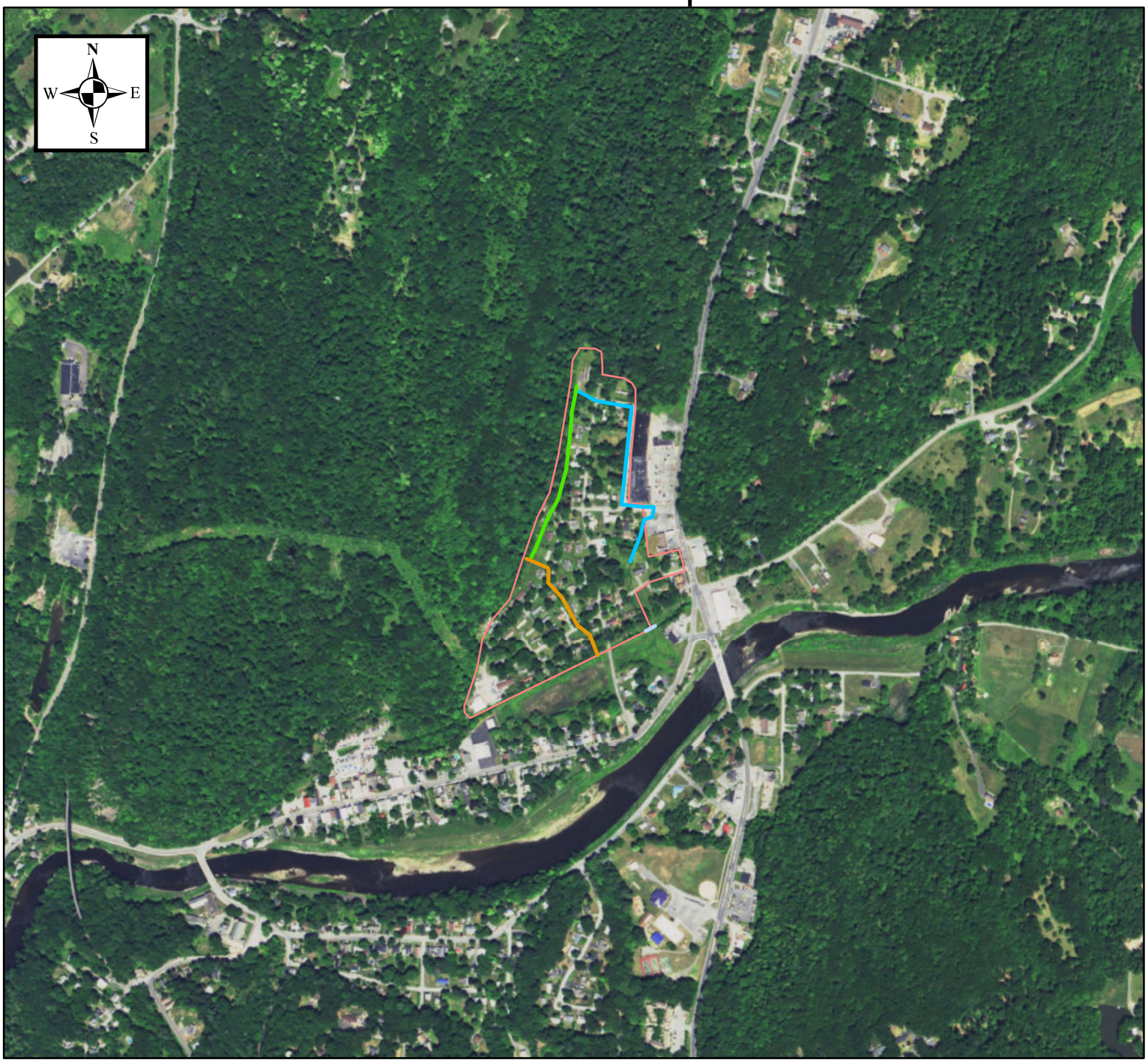

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Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
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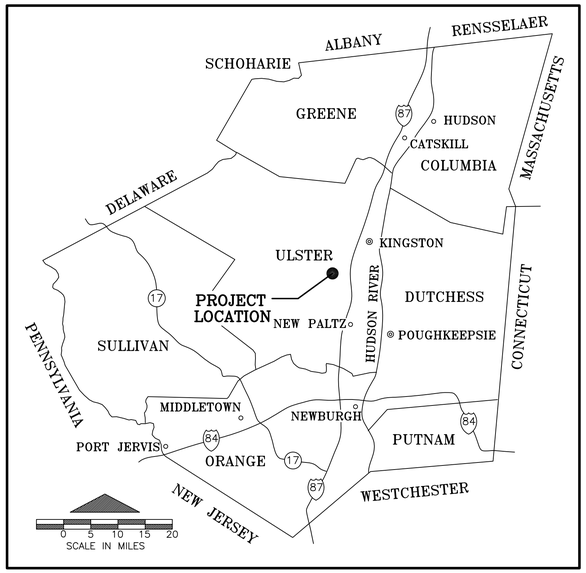
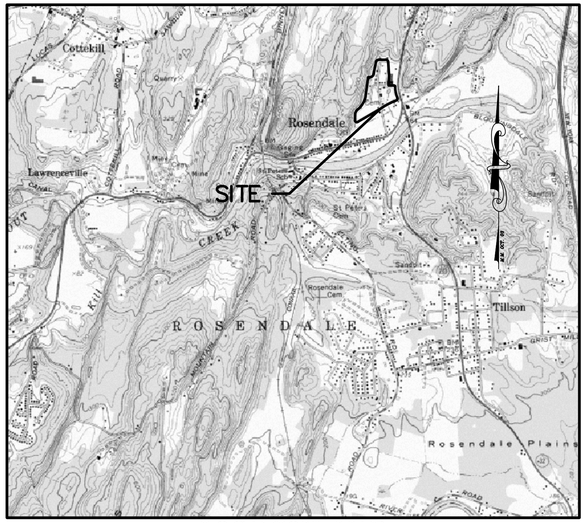


GENERAL LOCATION MAP

AERIAL VIEW



LOCATION MAP
ROSENDALE QUADRANGLE
7.5' MINUTE USGS TOPOGRAPHIC MAP
SCALE: 1" = 2000'

CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION

NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNOR'S OFFICE OF STORM RECOVERY

TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

TOWN OFFICIALS

JEANNE L. WALSH, TOWN SUPERVISOR

TOWN COUNCIL
JOHN P. HUGHES
JENNIFER METZGER
CHRISTOPHER PRYLOPSKI
FRANK KLEPEIS
ROBERT S. GALLAGHER, HIGHWAY SUPERINTENDENT
MANDY CONSTABLE, TOWN CLERK

FEBRUARY 2017

FINAL DESIGN FOR AGENCY REVIEW

SHEET INDEX

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	KEY MAP
3.	EXISTING CONDITIONS 1, EASTERN DRAINAGE SYSTEM
4.	EXISTING CONDITIONS 2, EASTERN DRAINAGE SYSTEM
5.	SELECTIVE DEMOLITION, EASTERN DRAINAGE SYSTEM
6.	PLAN AND PROFILE 1, EASTERN DRAINAGE SYSTEM
7.	PLAN AND PROFILE 2, EASTERN DRAINAGE SYSTEM
8.	EXISTING CONDITIONS, WESTERN DRAINAGE SYSTEM
9.	SELECTIVE DEMOLITION, WESTERN DRAINAGE SYSTEM
10.	PLAN AND PROFILE, WESTERN DRAINAGE SYSTEM
11.	EXISTING CONDITIONS, MOUNTAIN SWALE
12.	GRADING PLAN, MOUNTAIN SWALE
13.	DETAILS
14.	EROSION AND SEDIMENT CONTROL – EAST
15.	EROSION AND SEDIMENT CONTROL – WEST
16.	EROSION AND SEDIMENT CONTROL – MOUNTAIN SWALE

BRINNIER AND LARIOS, P.C.
PROFESSIONAL ENGINEERS AND LAND SURVEYORS
67 MAIDEN LANE
KINGSTON, NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 056741 STATE OF NEW YORK

LICENSED LAND SURVEYOR CHRISTOPHER J. ELLI 49629 STATE OF NEW YORK

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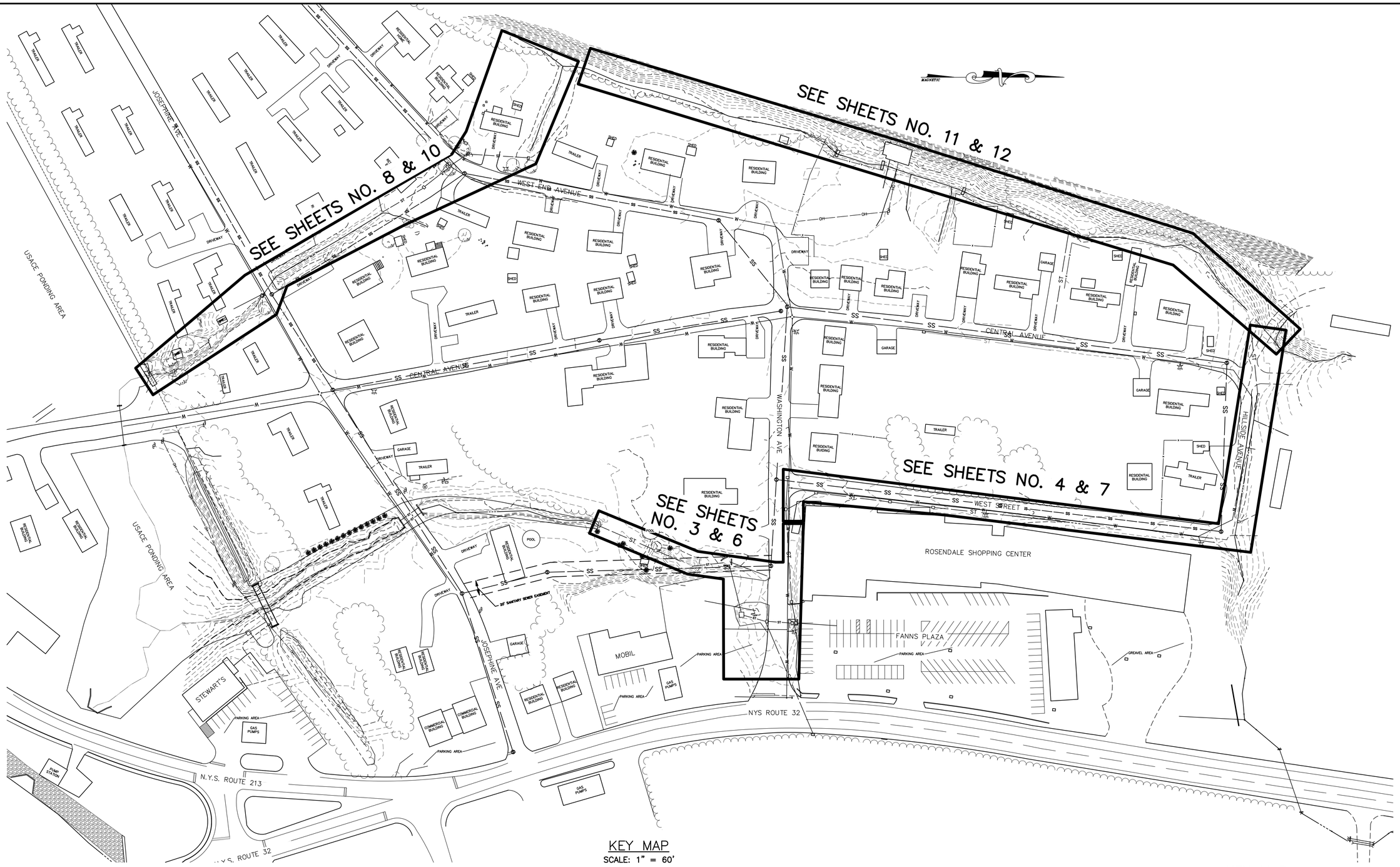
811 Know what's below. Call before you dig.



KEY MAP
SCALE: 1" = 60'

KEY MAP
CONTRACT NO. TR-171

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STATE OF NEW YORK

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TOWN OF ROSENDALE | ULSTER COUNTY | NEW YORK

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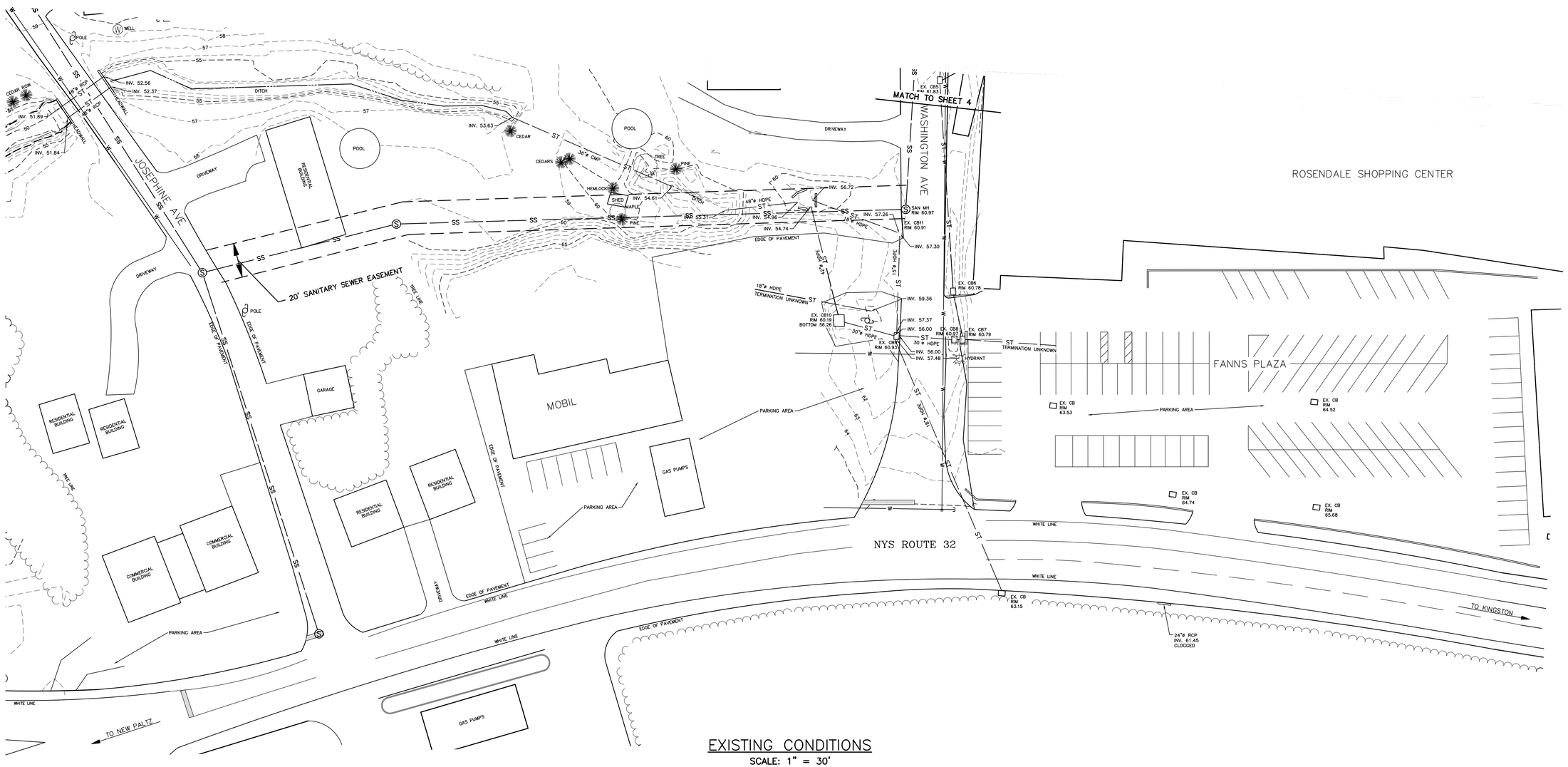

EXISTING CONDITIONS

SCALE: 1" = 30'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
X	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:

1. FIELD SURVEY PERFORMED BY BRINNIER AND LARIOS, P.C. ON JUNE 15, 2016, AUGUST 29, 2016 AND NOVEMBER 23, 2016.
2. USACE PONDING AREA BOUNDARY FROM USACE ROSENDALE FLOOD CONTROL PROJECT DRAWING NUMBER CC-RC-209, SHEET 9 OF 79

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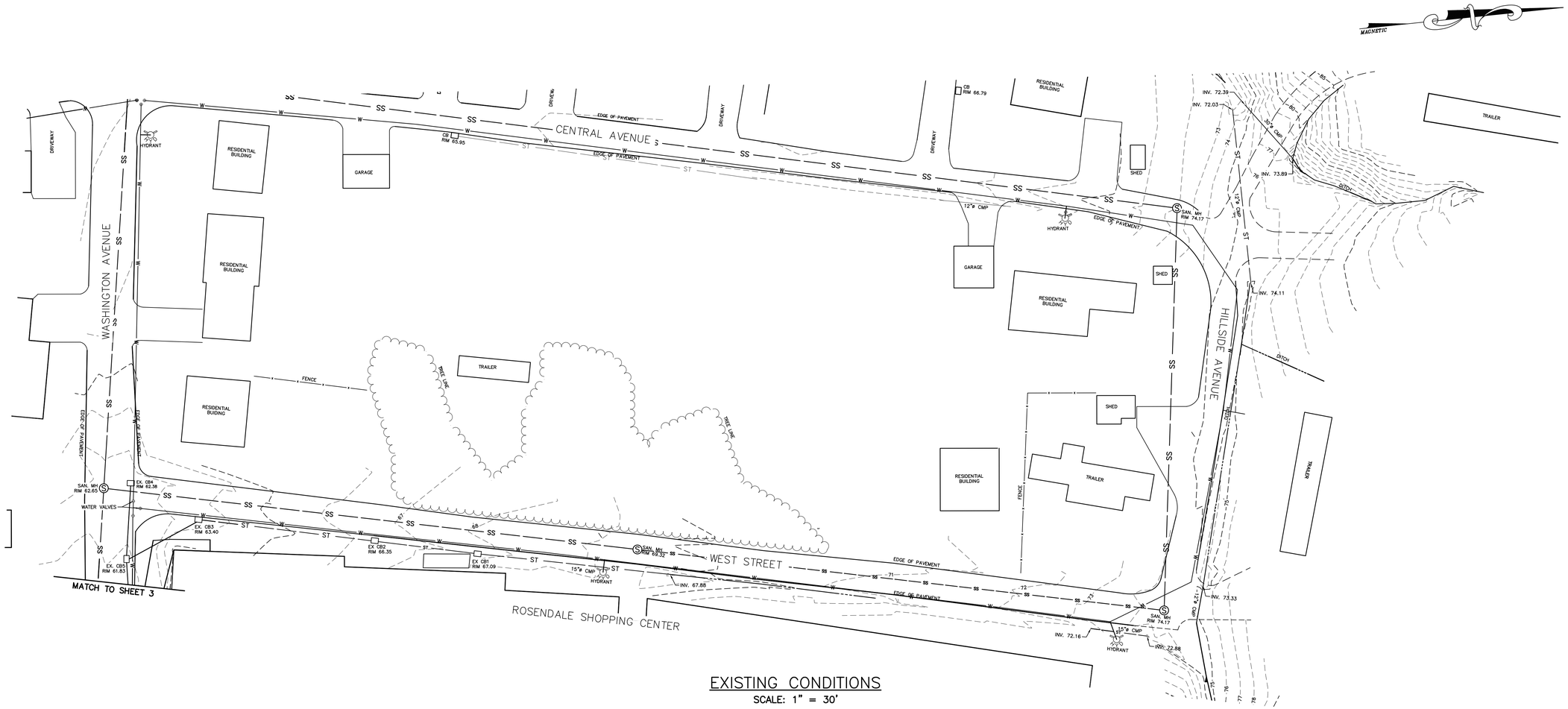

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EXISTING CONDITIONS 2
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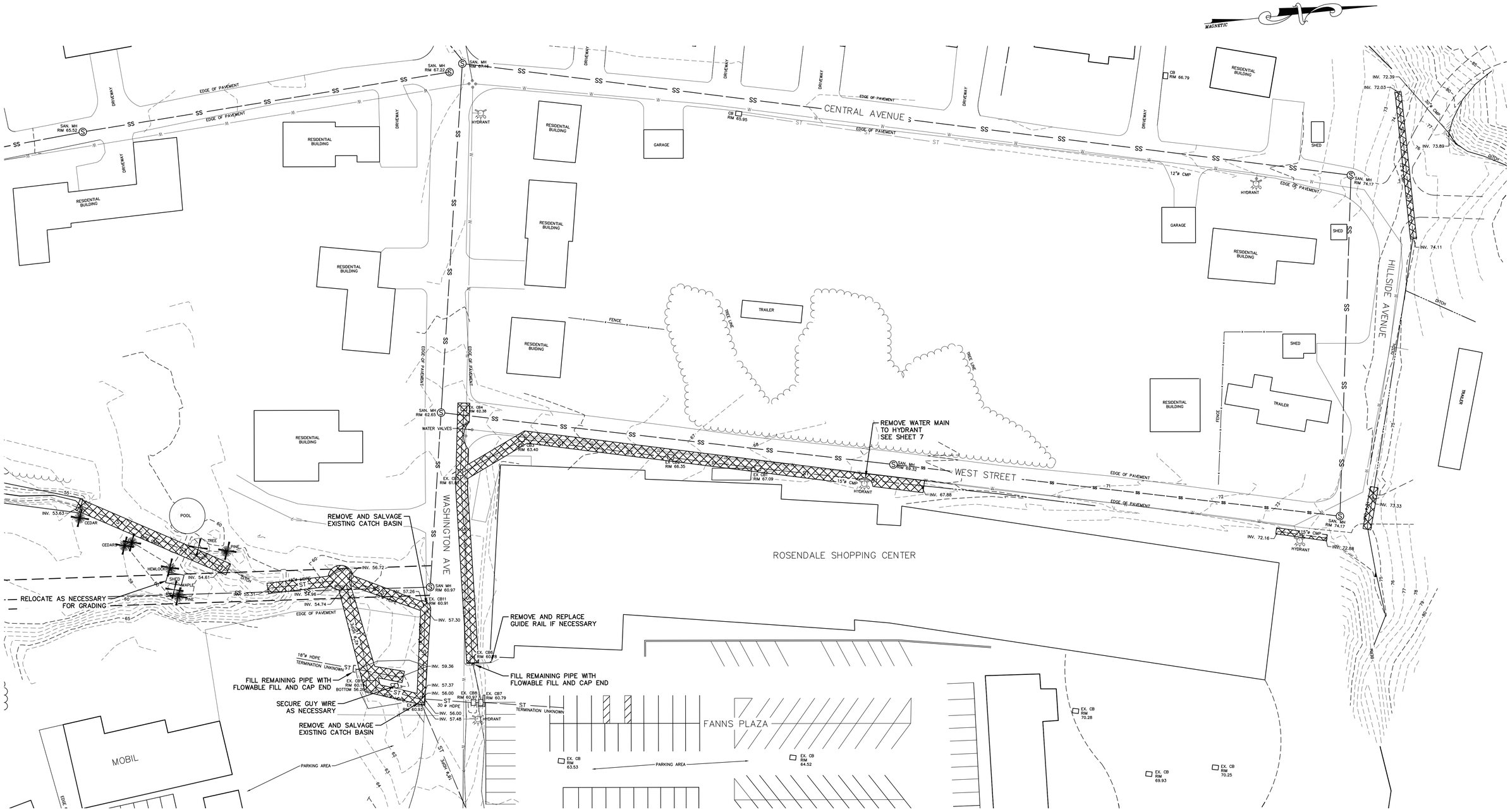

SELECTIVE DEMOLITION PLAN

SCALE: 1" = 30'

SELECTIVE DEMOLITION PLAN
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TS-171

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W	EXISTING WATER LINE
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	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	PROPOSED DEMOLITION
	PROPOSED TREE REMOVAL

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SCALE	DATE		SHEET NO.
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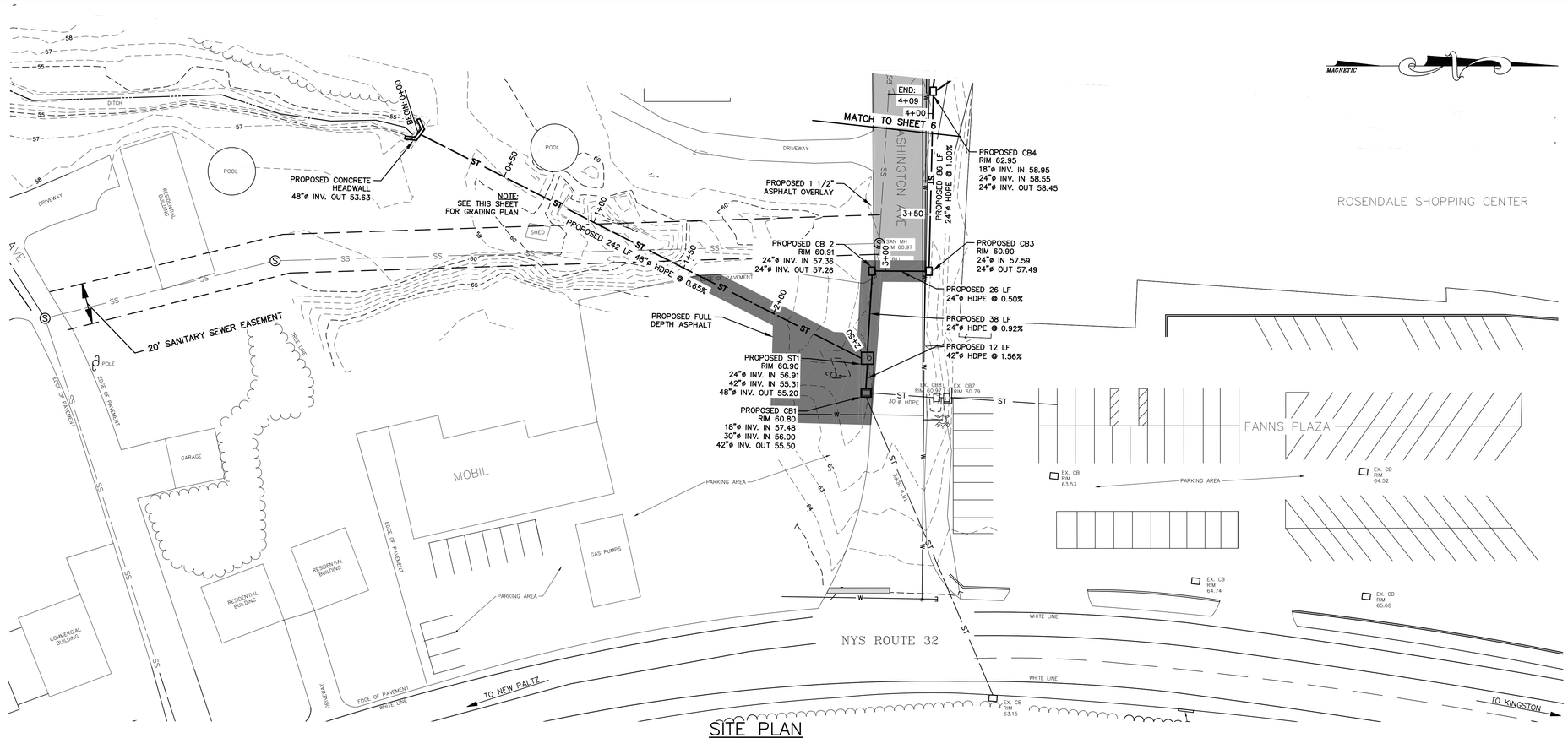
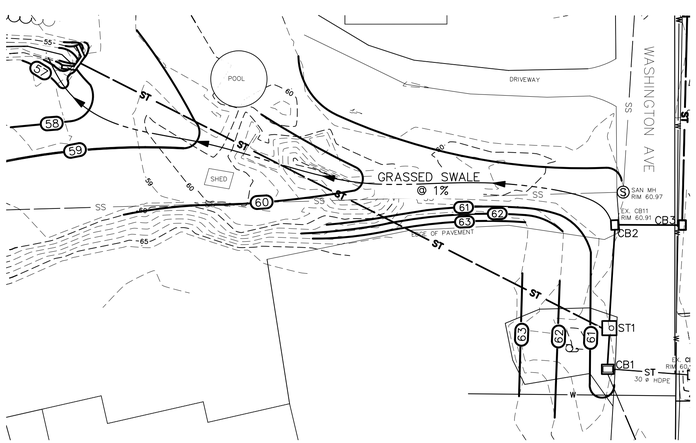
	DWG RJS	CHK JEM	

DRAINAGE STRUCTURE SCHEDULE					
STRUCTURE	TYPE (ID DIMENSIONS)	RIM ELEV. (FT)	INSIDE HEIGHT (FT)	STORM PIPING	INVERT ELEV. (FT)
ST1	6'x5' MANHOLE W 24" COVER	60.90	6 +/-	24"Ø HDPE IN	56.91
				42"Ø HDPE IN	55.31
				48"Ø HDPE OUT	55.20
CB1	4'x5' CATCH BASIN W F&G	60.80	6 +/-	18"Ø HDPE IN	57.48
				30"Ø HDPE IN	56.00
				42"Ø HDPE OUT	55.50
CB2	4'x4' CATCH BASIN W F&G	60.91	4 +/-	24"Ø HDPE IN	57.36
				24"Ø HDPE OUT	57.26
CB3	4'x4' CATCH BASIN W F&G	60.90	4 +/-	24"Ø HDPE IN	57.59
				24"Ø HDPE OUT	57.49
CB4	4'x4' CATCH BASIN W F&G	62.95	5 +/-	18"Ø HDPE IN	58.95
				24"Ø HDPE IN	58.55
				24"Ø HDPE OUT	58.45

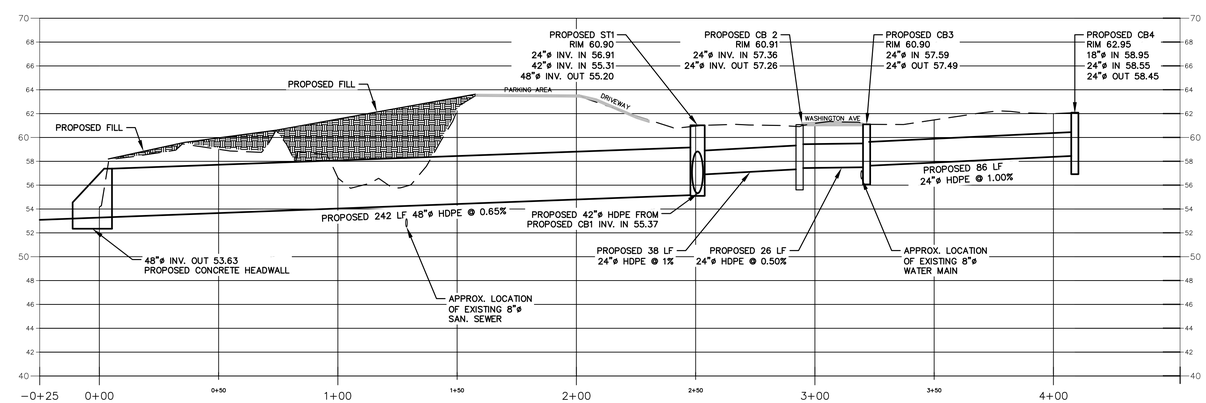
NOTES:
1. SEE PLAN AND PROFILE DRAWINGS FOR ORIENTATION OF PIPES.
2. ALL 4' CB STRUCTURES SHALL HAVE 30" X 48" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #7585 F&G ASSEMBLY OR APPROVED EQUAL.
3. ALL 3' CB STRUCTURES SHALL HAVE 24" X 24" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #5423 F&G ASSEMBLY OR APPROVED EQUAL.



SITE PLAN
SCALE: 1" = 30'



GRADING PLAN
SCALE: 1" = 30'



PROFILE OF STORM SEWER
SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

PLAN AND PROFILE 1
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

NOTE:
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LEGEND

50	CONTOURS (MINOR)		UTILITY POLE	ST	PROPOSED STORM SEWER
52	CONTOURS (MAJOR)		EXISTING HYDRANT		PROPOSED CATCH BASIN
PL	PROPERTY LINE	EX. CB1	EXISTING CATCH BASIN	58	PROPOSED CONTOUR
SS	EXISTING SANITARY SEWER	S	SANITARY MANHOLE		PROPOSED FULL DEPTH ASPHALT PAVEMENT
ST	EXISTING STORM SEWER	M	MANHOLE		PROPOSED 1 1/2" ASPHALT OVERLAY
W	EXISTING WATER LINE				
	DITCH				
	APPROX. TREE LINE				
x	FENCE				

GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER V. FELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER BERNIE M. LARIOS 058747 STATE OF NEW YORK

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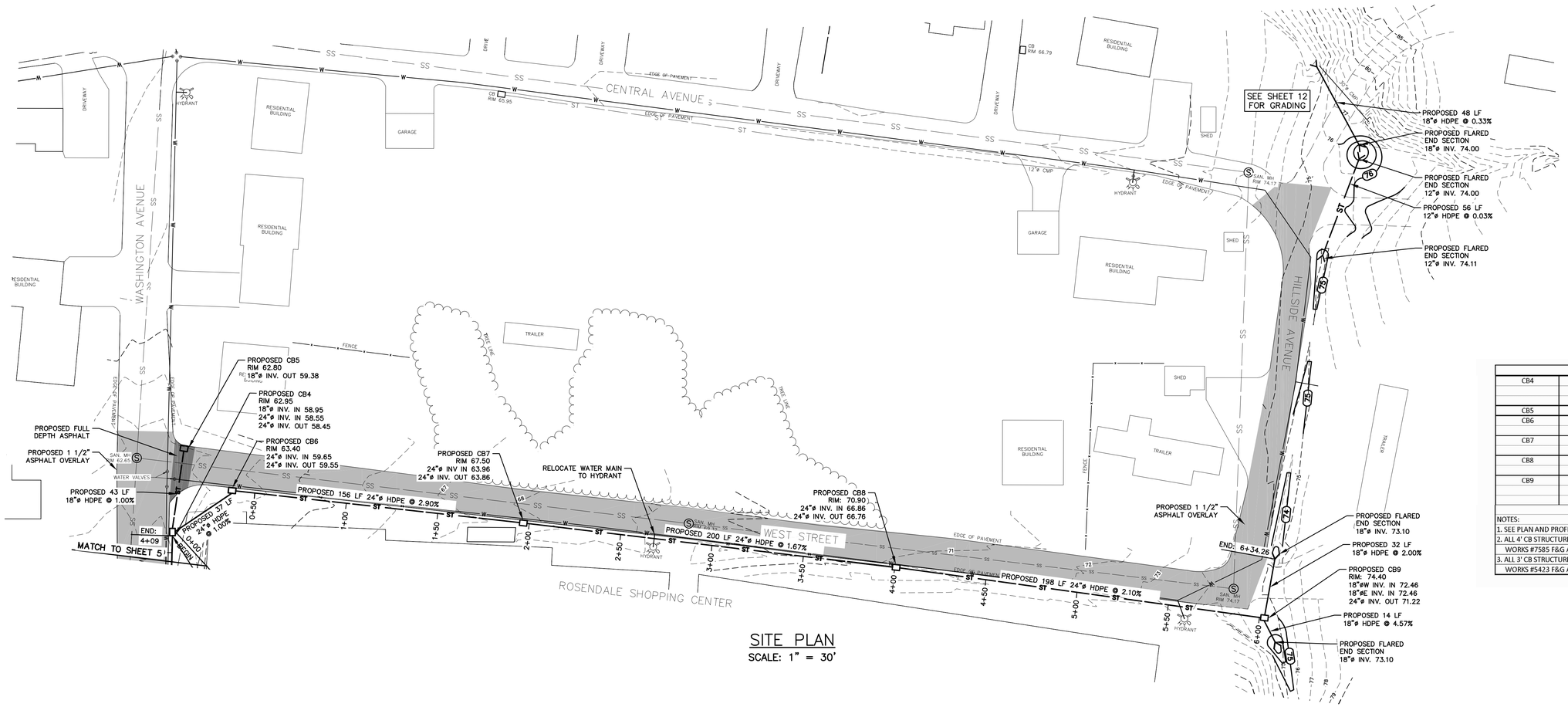
WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		6 OF 16
	DWG. RJS	CHK. JEM	

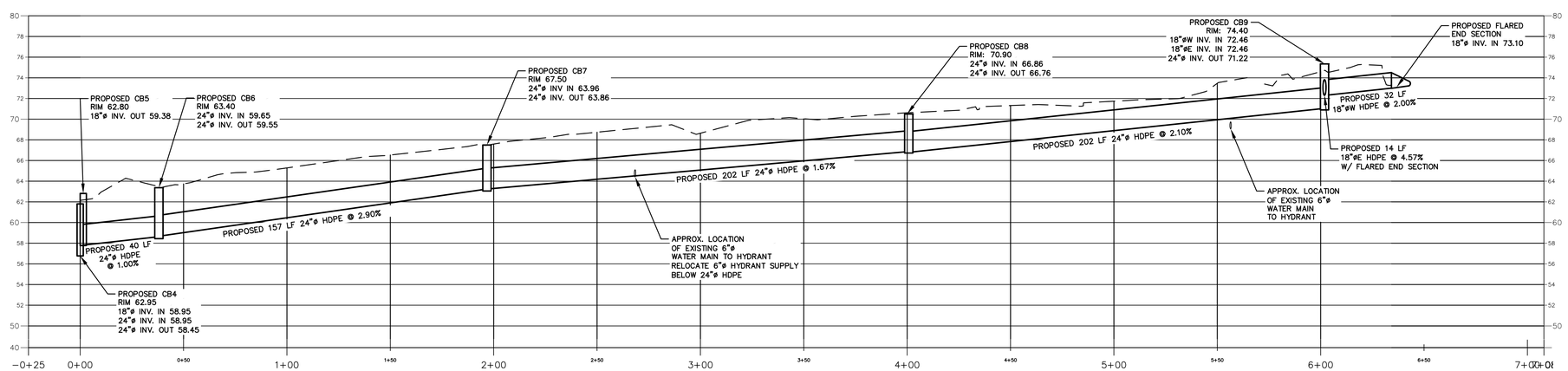


SITE PLAN

SCALE: 1" = 30'

DRAINAGE STRUCTURE SCHEDULE					
CB4	4'x4' CATCH BASIN W F&G	62.95	5 +/-	18"Ø HDPE IN	58.95
				24"Ø HDPE IN	58.55
				24"Ø HDPE OUT	58.45
CB5	3'X3' CATCH BASIN W F&G	62.80	4 +/-	24"Ø HDPE OUT	59.38
CB6	4'x4' CATCH BASIN W F&G	63.40	4 +/-	24"Ø HDPE IN	59.65
				24"Ø HDPE OUT	59.55
CB7	4'x4' CATCH BASIN W F&G	67.50	4 +/-	24"Ø HDPE IN	63.96
				24"Ø HDPE OUT	63.86
CB8	4'x4' CATCH BASIN W F&G	70.90	5 +/-	24"Ø HDPE IN	66.86
				24"Ø HDPE OUT	66.76
CB9	4'x4' CATCH BASIN W F&G	74.40	4 +/-	18"Ø HDPE IN	72.46
				18"Ø HDPE IN	72.46
				24"Ø HDPE OUT	71.22

NOTES:
1. SEE PLAN AND PROFILE DRAWINGS FOR ORIENTATION OF PIPES.
2. ALL 4' CB STRUCTURES SHALL HAVE 30" X 48" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #7585 F&G ASSEMBLY OR APPROVED EQUAL.
3. ALL 3' CB STRUCTURES SHALL HAVE 24" X 24" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #5423 F&G ASSEMBLY OR APPROVED EQUAL.



PROFILE OF STORM SEWER

SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR
- PROPOSED FULL DEPTH ASPHALT PAVEMENT
- PROPOSED 1 1/2" ASPHALT OVERLAY

GRAPHIC SCALE IN FEET
30 0 30

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PLAN AND PROFILE 2
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		7 OF 16
	DWG RJS	CHK JEM	

EXISTING CONDITIONS

SCALE: 1" = 30'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:

1. FIELD SURVEY PERFORMED BY BRINNIER AND LARIOS, P.C. ON JUNE 15, 2016, AUGUST 29, 2016 AND NOVEMBER 23, 2016.
2. USACE PONDING AREA BOUNDARY FROM USACE ROSENDALE FLOOD CONTROL PROJECT DRAWING NUMBER CC-RC-209, SHEET 9 OF 79

NOTE:

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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER SERVIS M. LARIOS 058747 STATE OF NEW YORK

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EXISTING CONDITIONS
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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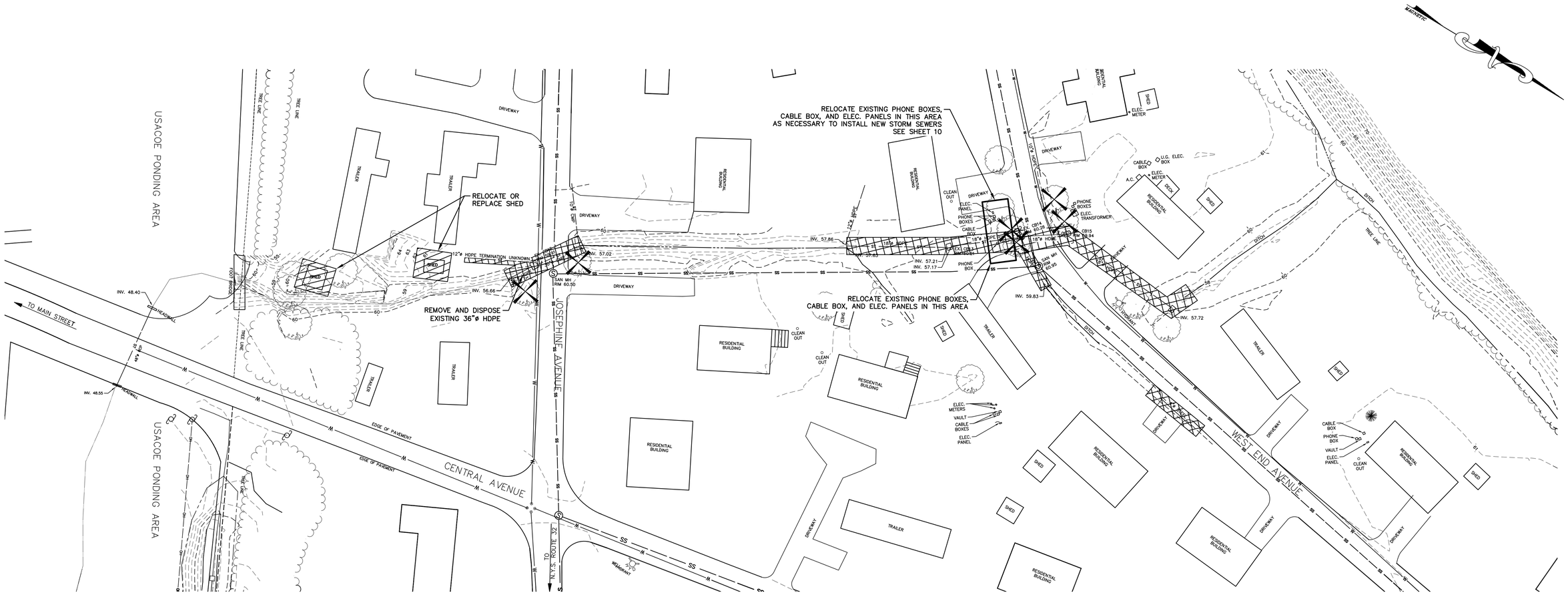
SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		8 OF 16
	DWG RJS	CHK JEM	



SELECTIVE DEMOLITION PLAN

SCALE: 1" = 30'

LEGEND

CONTOURS (MINOR)	UTILITY POLE
CONTOURS (MAJOR)	EXISTING HYDRANT
PROPERTY LINE	EXISTING CATCH BASIN
EXISTING SANITARY SEWER	SANITARY MANHOLE
EXISTING STORM SEWER	MANHOLE
EXISTING WATER LINE	PROPOSED DEMOLITION
DITCH	PROPOSED TREE REMOVAL
APPROX. TREE LINE	
FENCE	

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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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SELECTIVE DEMOLITION PLAN
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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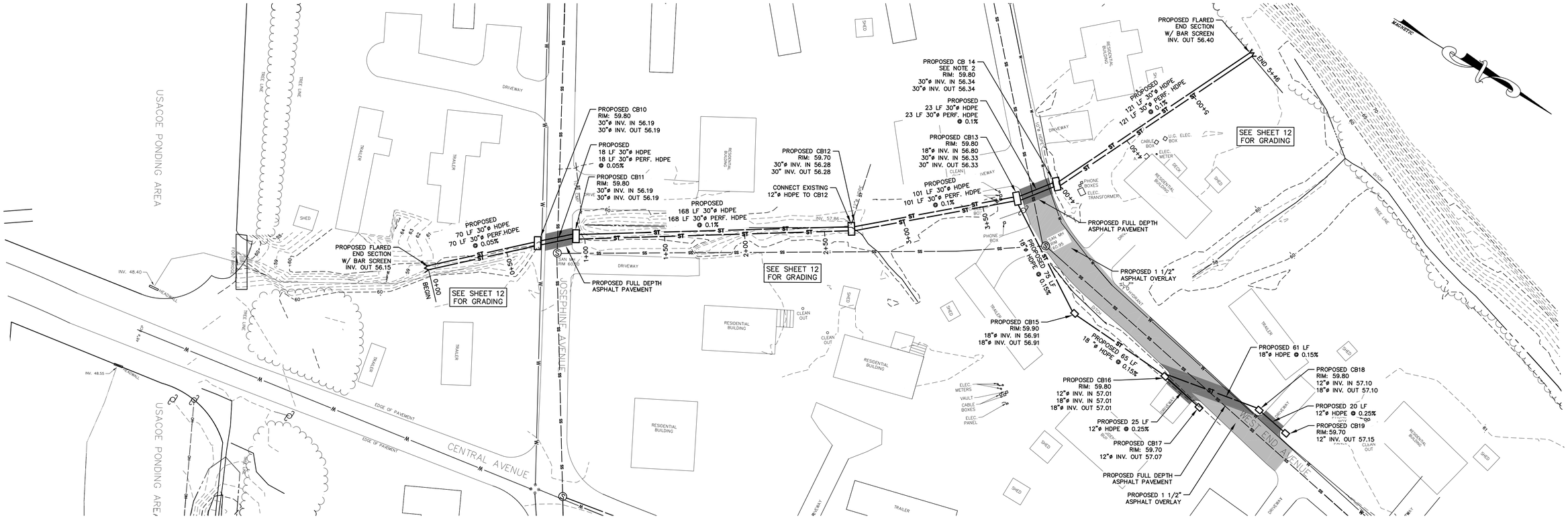
SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		9 OF 16
	DWG RJS	CHK JEM	

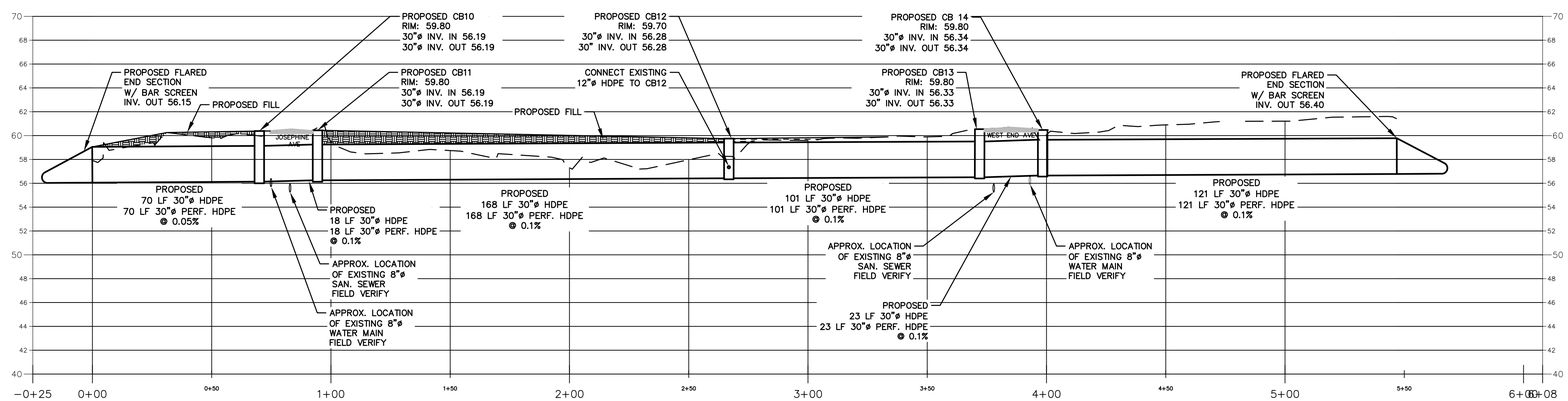


SITE PLAN

SCALE: 1" = 30'

DRAINAGE STRUCTURE SCHEDULE					
CB9	4'x4' CATCH BASIN W F&G	74.40	4 +/-	18"Ø HDPE IN	72.46
				18"Ø HDPE IN	72.46
				24"Ø HDPE OUT	71.22
CB10	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.19
CB11	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.19
CB12	4'X8' CATCH BASIN W F&G	59.80	4	12" HDPE IN	57.86
				2 - 30"Ø HDPE	56.28
CB13	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.33
CB14	4'X8' CATCH BASIN W F&G	59.80	4	2 - 30"Ø HDPE	56.34
CB15	3'X3' CATCH BASIN W F&G	59.90	4 +/-	18"Ø HDPE	56.91
CB16	4'X4' CATCH BASIN W F&G	59.80	3 +/-	18"Ø HDPE IN	57.01
				12"Ø HDPE IN	57.01
				18"Ø HDPE OUT	57.01
CB17	3'X3' CATCH BASIN W F&G	59.70	3 +/-	12"Ø HDPE OUT	57.05
CB18	3'X3' CATCH BASIN W F&G	59.80	3 +/-	12"Ø HDPE IN	57.10
				18"Ø HDPE OUT	57.10
CB19	3'X3' CATCH BASIN W F&G	59.70	3 +/-	12"Ø HDPE OUT	57.13

NOTES:
1. SEE PLAN AND PROFILE DRAWINGS FOR ORIENTATION OF PIPES.
2. ALL 4' CB STRUCTURES SHALL HAVE 30" X 48" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #7585 F&G ASSEMBLY OR APPROVED EQUAL.
3. ALL 3' CB STRUCTURES SHALL HAVE 24" X 24" HEAVY DUTY F&G. EAST JORDAN IRON WORKS #5423 F&G ASSEMBLY OR APPROVED EQUAL.



PROFILE OF STORM SEWER

SCALE: HORIZONTAL 1" = 30'
VERTICAL 1" = 6'

LEGEND

50	CONTOURS (MINOR)		UTILITY POLE	ST	PROPOSED STORM SEWER
52	CONTOURS (MAJOR)		EXISTING HYDRANT		PROPOSED CATCH BASIN
PL	PROPERTY LINE	EX. CB1	EXISTING CATCH BASIN	50	PROPOSED CONTOUR
SS	EXISTING SANITARY SEWER	S	SANITARY MANHOLE		PROPOSED FULL DEPTH ASPHALT PAVEMENT
ST	EXISTING STORM SEWER	M	MANHOLE		PROPOSED 1 1/2" ASPHALT OVERLAY
W	EXISTING WATER LINE				
	DITCH				
	APPROX. TREE LINE				
X	FENCE				

NOTE:
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NOTE:
1. FIELD VERIFY TOP OF PIPE ELEVATIONS AT EACH SANITARY CROSSING PRIOR TO INSTALLING ANY STORM SEWER PIPING.
2. CB14 SHALL HAVE AN 8"HIGH X 12"LONG OPENING ON THE SOUTH SIDEWALL AT ELEV. 58.25 FEET.

GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. FELL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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PLAN AND PROFILE
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		10 OF 16
	DWG RJS	CHK JEM	

EXISTING CONDITIONS

SCALE: 1" = 40'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
℄	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE

NOTE:
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GRAPHIC SCALE IN FEET

40 0 40

LICENSED LAND SURVEYOR — CHRISTOPHER J. TELL — 49679 — STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER — DENNIS M. LARIOS — 058741 — STATE OF NEW YORK

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EXISTING CONDITIONS
MOUNTAIN SWALE
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE — ULSTER COUNTY — NEW YORK

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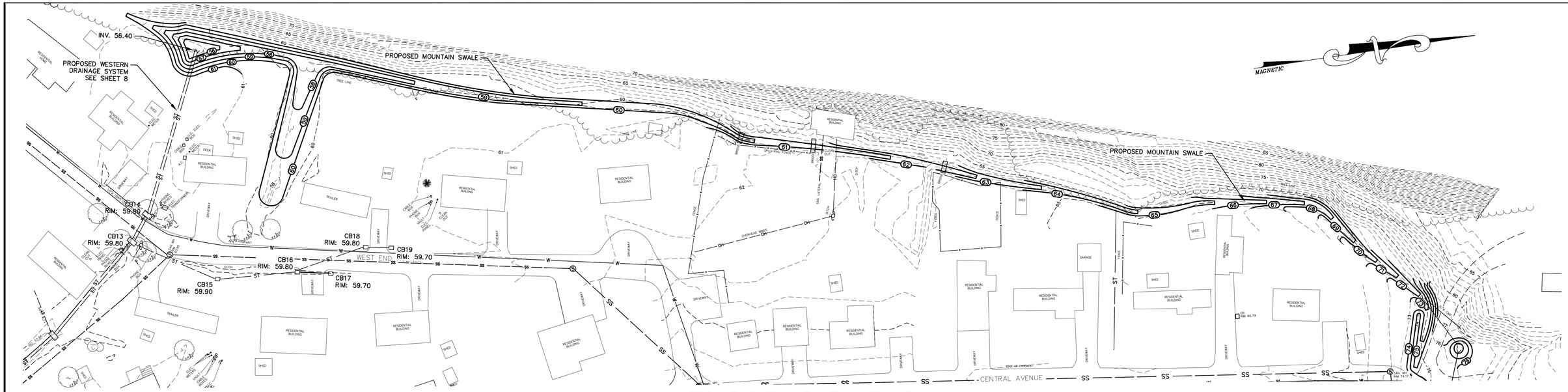
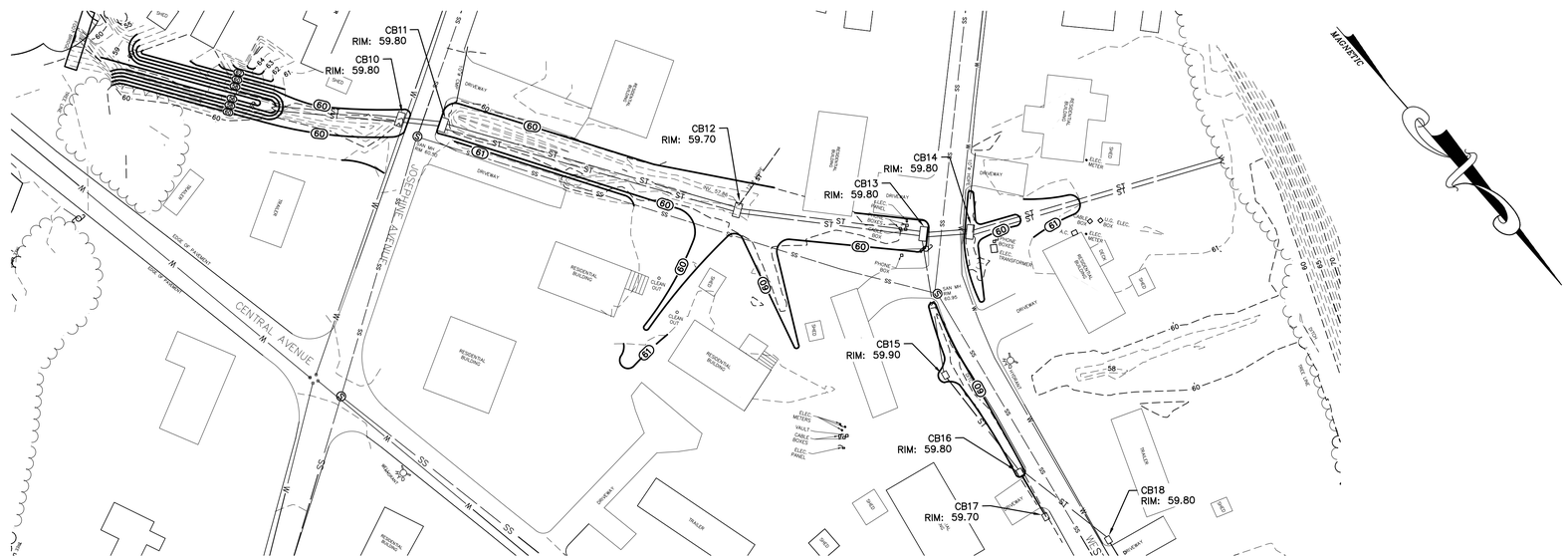
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE — KINGSTON, N.Y.
Phone: 845-338-7622 — Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 40'	FEB. 2017		11 OF 16
	DWG RJS	CHK JEM	



GRADING PLAN MOUNTAIN SWALE

SCALE: 1" = 40'



GRADING PLAN WESTERN DRAINAGE SYSTEM

SCALE: 1" = 40'

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR

NOTE:
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GRAPHIC SCALE IN FEET

40 0 40

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIE M. LARIOS 058747 STATE OF NEW YORK

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GRADING PLAN
WEST AND MOUNTAIN SWALE
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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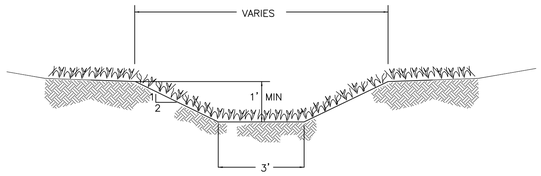
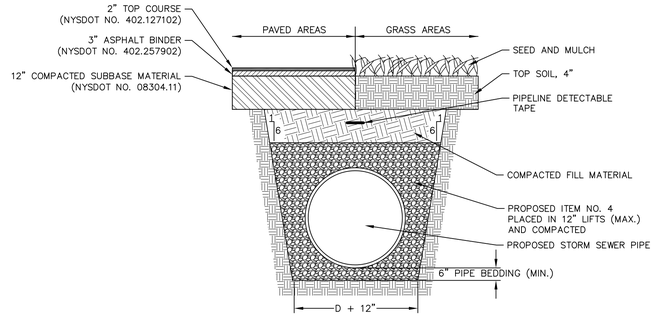
SCALE	DATE		SHEET NO.
1" = 40'	FEB. 2017		12 OF 16
	DWG RJS	CHK JEM	

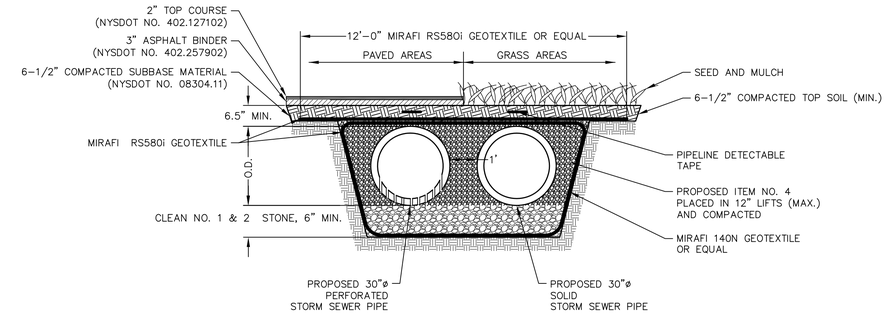


VEGETATION REQUIREMENTS FOR OPEN CHANNELS
SEED MIXTURE SHALL BE TALL FESCUE OR SMOOTH BROMEGRASS (0.45 LBS/1000 SF), KENTUCKY BLUEGRASS (0.6 LBS/1000 SF) OR PERENNIAL RYEGRASS (0.2 LBS/1000 SF). MULCH SEEDED AREAS. FERTILIZE, LIME AND MOW AS NEEDED TO MAINTAIN DENSE PROTECTIVE COVER.

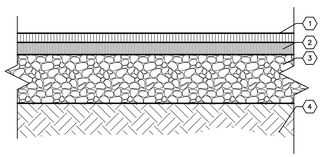
TYPICAL MOUNTAINSIDE SWALE SECTION
NOT TO SCALE



TYPICAL STORM SEWER TRENCH DETAIL
NOT TO SCALE



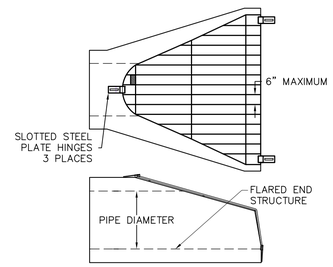
STORM SEWER TRENCH DETAIL
WESTERN DRAINAGE SYSTEM
NOT TO SCALE



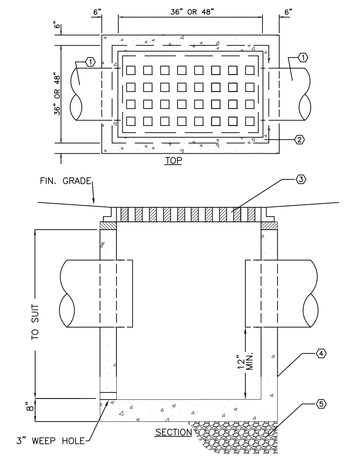
KEYED NOTES

1. 2" TYPE 6F2 ASPHALT WEARING SURFACE OVER TACK COAT. (NYSDOT #403.178202
2. 3" TYPE 3 BINDER OVER PRIME COAT. (NYSDOT #403.138902 M)
3. 12" (MIN.) COMPACTED ITEM #4 BASE MATERIAL. (NYSDOT #304.11 M)
4. WELL-DRAINED SUB-GRADE (COMPACT SUB-GRADE TO 95% MODIFIED PROCTOR),

TYPICAL PAVEMENT SECTION
NOT TO SCALE



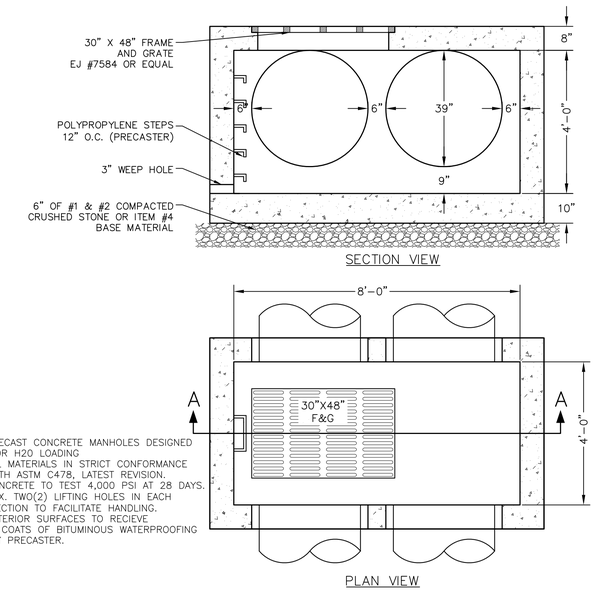
TYPICAL TRASH GUARD
FLARED END
NOT TO SCALE



KEYED NOTES

1. SEE SITE UTILITY PLAN FOR PIPE SIZES AND INVERTS.
2. PRECAST CONCRETE CATCH BASIN, 4,000 PSI CONCRETE, DESIGN FOR AASHTO H20 LOADING
3. HEAVY DUTY FRAME AND GRATE (AASHTO H20 LOADING),
   3'X3' CB – 24"X24" F&G. EJ#5423 OR EQUAL
   4'X4' CB – 30"X48" F&G. EJ#7584 OR EQUAL
   4'X5' CB – 30"X48" F&G. EJ#7584 OR EQUAL
4. EXTERIOR SURFACES TO RECEIVE 2 COATS OF BITUMINOUS WATERPROOFING BY PRECASTER
5. 6" OF #1 & #2 COMPACTED CRUSHED STONE OR ITEM #4 BASE MATERIAL

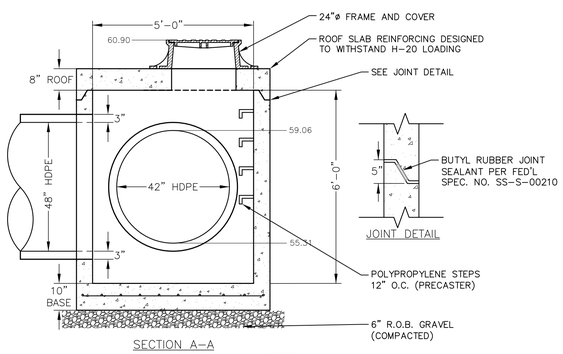
TYPICAL CATCH BASIN DETAIL
NOT TO SCALE



NOTES

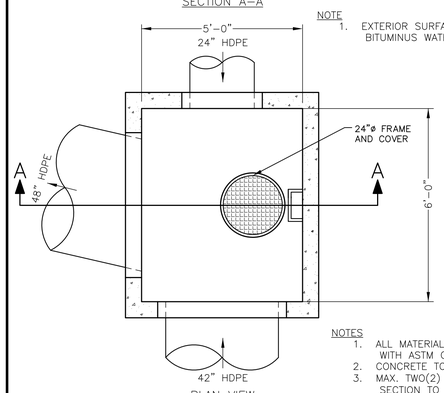
1. PRECAST CONCRETE MANHOLES DESIGNED FOR H20 LOADING
2. ALL MATERIALS IN STRICT CONFORMANCE WITH ASTM C478, LATEST REVISION.
3. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
4. MAX. TWO(2) LIFTING HOLES IN EACH SECTION TO FACILITATE HANDLING.
5. EXTERIOR SURFACES TO RECIEVE 2 COATS OF BITUMINOUS WATERPROOFING BY PRECASTER.

CATCH BASIN CB10–CB14 DETAIL
NOT TO SCALE



NOTE

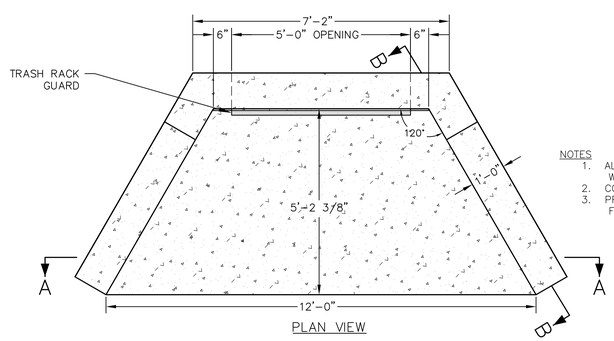
1. EXTERIOR SURFACES TO RECEIVE 2 COATS OF BITUMINUS WATERPROOFING BY PRECASTER.



NOTES

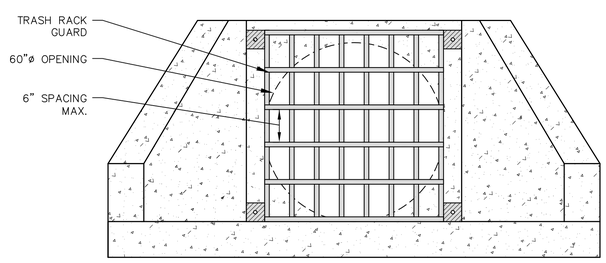
1. ALL MATERIALS IN STRICT CONFORMANCE WITH ASTM C478, LATEST REVISION.
2. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
3. MAX. TWO(2) LIFTING HOLES IN EACH SECTION TO FACILITATE HANDLING.

STORM SEWER ST1 MANHOLE
NOT TO SCALE

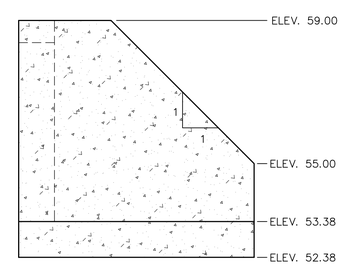


NOTES

1. ALL MATERIALS IN STRICT CONFORMANCE WITH ASTM C478, LATEST REVISION.
2. CONCRETE TO TEST 4,000 PSI AT 28 DAYS.
3. PROVIDE LIFTING HOLES AS APPROPRIATE TO FACILITATE HANDLING AND PLACEMENT



SECTION A–A



SECTION B–B

PRECAST 48"ø PIPE HEADWALL, WING WALLS, APRON AND TRASH RACK
NOT TO SCALE

LICENSED LAND SURVEYOR — CHRISTOPHER J. HILL — 49679 — STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER — DENNIS M. LARIOS — 058747 — STATE OF NEW YORK

Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

DETAILS
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE — ULSTER COUNTY — NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE — KINGSTON, N.Y.
Phone: 845-338-7622 — Fax: 845-338-7660

SCALE	DATE		SHEET NO.
N.T.S.	FEB. 2017		13 OF 16
	DWG RJS	CHK JEM	

EROSION & SEDIMENT CONTROL NOTES:

ALL CONSTRUCTION ACTIVITIES INVOLVING THE REMOVAL OR DEPOSITION OF SOILS ARE TO BE PROVIDED WITH APPROPRIATE PROTECTIVE MEASURES TO MINIMIZE EROSION OF, AND CONTAIN SEDIMENT WITHIN, THE AREA UNDER DEVELOPMENT. THOSE METHODS DEEMED MOST EFFECTIVE ARE DESCRIBED BELOW.

1. FOLLOW THE CONSTRUCTION SCHEDULE OUTLINED ON THIS SHEET.
2. CLEAR ONLY WHAT IS REQUIRED FOR THE IMMEDIATE CONSTRUCTION ACTIVITY. CLEARING AND GRADING SHOULD BE DONE AS CONSTRUCTION PROGRESSES. ONLY THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME DURING CONSTRUCTION.
3. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE.
4. PRIOR TO THE START OF CONSTRUCTION, TEMPORARY SILT FENCING AND/OR OTHER APPROVED DEVICES SHALL BE INSTALLED WHERE DEEMED NECESSARY TO PREVENT SOIL MIGRATION INTO WATER COURSES, WETLANDS, STORM DRAINAGE SYSTEMS, AND OFF SITE. SEE SILTATION CONTROL NOTES FOR INSTALLATION AND MAINTENANCE OF SILT FENCING.
5. WHENEVER POSSIBLE, SITE CONSTRUCTION ACTIVITIES SHALL START AT THE NEAREST POINT UPSLOPE OF THE EROSION CONTROL DEVICE, AND PROCEED TO ACTIVITIES FURTHER UPSLOPE.
6. SILT FENCING/TRAPS SHALL BE CLEANED OUT WHEN ACCUMULATED SEDIMENT HAS REDUCED THE CAPACITY OF THE TRAP BY 50%. SEDIMENT REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF IN A MANNER WHICH PREVENTS IT FROM ENTERING THE TRAP AGAIN.
7. WHEN LAND IS EXPOSED DURING DEVELOPMENT, THE PERIOD OF EXPOSURE SHALL BE KEPT TO A MINIMUM. IF PERMANENT VEGETATION, PAVEMENT, AND/OR STRUCTURES ARE NOT COMPLETED WITHIN 14 DAYS, STRAW MULCH (OR OTHER APPROVED MATERIAL) SHALL BE SPREAD TO TEMPORARILY COVER EXPOSED SOILS.
8. NO PERMITTED CONSTRUCTION ACTIVITIES SHALL TAKE PLACE WITHIN ANY WATERCOURSES OR WETLANDS UNTIL APPROPRIATE MEASURES ARE TAKEN TO PROTECT AND/OR TEMPORARILY DIVERT FLOWING WATER PAST THE WORK AREA AND DOWNSTREAM SEDIMENT CONTROLS ARE IN PLACE. IN GENERAL, THESE SEDIMENT CONTROLS SHALL NOT BE REMOVED UNTIL UPSTREAM ACTIVITY HAS BEEN SATISFACTORILY COMPLETED AND THE STREAM FLOWS CLEAR.
9. ALL TOPSOIL WHICH HAS BEEN STRIPPED AND STOCKPILED SHALL BE PLACED AT LEAST 50 FEET FROM ANY WETLAND OR WATERCOURSE. THE TOE OF THE STOCKPILE SHALL BE PROTECTED IN A MANNER WHICH PREVENTS SOIL FROM MIGRATING.
10. RING ANY TEMPORARY STOCKPILES WITH SILT FENCE TO PREVENT EROSION OF THE PILE.
11. ALL TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL REMAIN IN PLACE AND BE MAINTAINED REGULARLY IN PROPER FUNCTIONING CONDITION UNTIL ALL AREAS EXPOSED DURING CONSTRUCTION HAVE BEEN SUITABLY STABILIZED WITH FINAL VEGETATIVE COVER, PERMANENT STRUCTURES, OR PAVEMENT.
12. THE CONTRACTOR SHALL COMPLY WITH THE PROVISIONS OF ALL ENVIROMENTAL/SPDES PERMITS ISSUED FOR THIS PROJECT AND LOCAL, STATE AND FEDERAL REGULATIONS.
13. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PREVENT CONTAMINATION OF THE EXISTING DRAINAGE SWALES BY SILT, SEDIMENT, FUELS, SOLVENTS, LIQUIDS, CONCRETE LEACHATE, OR ANY OTHER POLLUTANT ASSOCIATED WITH THE CONSTRUCTION OF THIS PROJECT.

CONSTRUCTION SCHEDULE:

1. FLAG THE LIMIT OF DISTURBANCE TO DELINEATE THE WORK AREAS.
2. HOLD A PRE–CONSTRUCTION MEETING PRIOR TO STARTING CONSTRUCTION.
3. INSTALL TEMPORARY STABILIZED CONSTRUCTION ENTRANCE.
4. INSTALL TEMPORARY SILT FENCING. SILT FENCE LOCATIONS AS DEPICTED ON PLANS ARE ILLUSTRATIVE. CONTRACTOR SHALL EXERCISE DILIGENCE WHEN INSTALLING SILT FENCE TO CAPTURE ALL SEDIMENT LADEN RUNOFF.
5. CLEAR AND ROUGH GRADE SITE IN THE AREAS OF IMMEDIATE CONSTRUCTION ACTIVITY ONLY.
6. STOCKPILE TOPSOIL. CONSTRUCT CHANNELS. BARE AREAS SHALL BE MULCHED SHOULD GRADING BE DISCONTINUED FOR MORE THAN 14 DAYS.
7. COMPLETE FINAL GRADING FOR SLOPE STABILIZATION.
8. COMPLETE FINAL GRADING. TOPSOIL CRITICAL AREAS AND PERMANENTLY VEGETATE, LANDSCAPE AND MULCH.
9. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AT LEAST ONCE EVERY (7) SEVEN CALENDER DAYS. NEEDED REPAIRS WILL BE MADE IMMEDIATELY. IF GREATER THAN 5 ACRES OF LAND IS DISTURBED AT ONE TIME, THE QUALIFIED INSPECTOR SHALL CONDUCT 2 SITE INSPECTIONS EVERY (7) SEVEN CALENDER DAYS.
10. AFTER THE SITE IS STABILIZED, REMOVE ALL TEMPORARY MEASURES AND INSTALL PERMANENT VEGETATION ON THE DISTURBED AREAS.

INSPECTIONS AND REPORTING:

1. FOLLOW ALL REQUIREMENTS OUTLINED IN THE SWPPP AND NYSDEC SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY, PERMIT NO. GP–0–15–002.

SILTATION CONTROL NOTES:

1. ALL SILTATION AND EROSION CONTROL STRUCTURES SHALL BE INSTALLED PRIOR TO ANY EXCAVATION AND AS ACCEPTABLE TO THE ENGINEER. SILT FENCE SHALL BE MAINTAINED FOR THE DURATION OF SAID WORK AND SHALL NOT BE REMOVED UNTIL APPROVED BY THE ENGINEER.

2. SILT FENCE SHALL CONSIST OF 24" HIGH GEOTEXTILE FABRIC (FILTER CLOTH) INSTALLED PARALLEL WITH THE TOE OF SLOPES AS INDICATED ON THE PLAN.

3. THE FABRIC SHALL BE FASTENED SECURELY AT THE TOP AND MID SECTION TO MIN. 3' LONG FENCE POSTS PLACED A MAX. OF 10' ON CENTER. THE BOTTOM 6" OF FABRIC SHALL BE LAID INTO THE TRENCH TO PREVENT UNDERMINING.

4. ADJOINING SECTIONS OF FILTER CLOTH SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.

5. SILT FENCING SHALL BE CLEANED OUT WHEN NEED, WHEN ACCUMULATED SEDIMENT HAS REDUCED THE CAPACITY BY 50% OR BULGES DEVELOP IN THE FABRIC. SEDIMENT REMOVED BE PROPERLY DISPOSED OF IN A MANNER WHICH PREVENTS IT FROM ENTERING THE AREA AGAIN.

6. SILT FENCE SHALL BE INSTALLED IN ALL AREAS THAT WILL HAVE AN EXCAVATION OPEN FOR MORE THAN 24 HOURS.

7. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF–PRODUCING RAINFALL AND NO LESS THAN ONCE EVERY WEEK. ANY NEED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED AND INSTALLED FOR THEIR APPROPRIATE PHASE OF THE PROJECT.

LANDSCAPING & VEGETATION ESTABLISHMENT NOTES:

1. ALL TEMPORARY SEEDING SHALL BE RYEGRASS (ANNUAL OR PERENNIAL) AT AN APPLICATION RATE OF 0.7 POUNDS PER 1,000 SQUARE FEET. MULCH IMMEDIATELY AFTER SEEDING WITH STRAW AT A RATE OF 2 BALES (90 lbs) PER 1,000 SQUARE FEET.
2. ALL OTHER SITE AREAS SPECIFIED FOR PERMANENT GRASS VEGETATION SHALL BE SEEDED WITH A MIXTURE OF PERENNIAL RYEGRASS SEED OF THE PENNFINE/JUNN VARIETY AT A RATE 0.10 POUNDS PER 1,000 SQUARE FOOT. EROSION AND SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE INSPECTED UNTIL FULL VEGETATION IS ESTABLISHED.
3. STRAW MULCH SHALL BE USED FOR ALL AREAS WHERE VEGETATION IS TO BE ESTABLISHED. MULCH SHALL BE INSTALLED IMMEDIATELY AFTER SEEDING AT A RATE OF 90–100 POUNDS PER 1,000 SQUARE FEET.

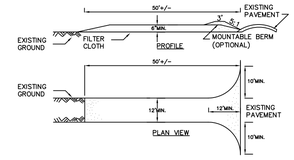
MAINTENANCE SCHEDULE:

MAINTENANCE DURING CONSTRUCTION

- ALL EROSION AND SEDIMENT CONTROL PRACTICES ALONG WITH TREE PROTECTION PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION EVERY SEVEN DAYS. ANY NEEDED REPAIRS WILL BE DONE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED AND INSTALLED FOR THEIR APPROPRIATE PHASE OF THE PROJECT.
- THE STABILIZED CONSTRUCTION ENTRANCES SHALL BE CLEANED OR REPLACED WHEN TRACKING OF SEDIMENT BECOMES EVIDENT.

LONG TERM MAINTENANCE

- WEED AND WATER TO ESTABLISH PERMANENT VEGETATION.
- REPLACEMENT/REHABILITATION SHALL BE MADE TO ANY ERODED AREAS.
- PROVIDE REPLACEMENT OF PLANTINGS, MULCH, WEEDING AND THINNING TO MAINTAIN THE DESIRED APPEARANCE.
- THE STORM WATER MANAGEMENT AREAS SHALL BE KEPT CLEAN OF TRASH AND DEBRIS.
- INSPECT AT LEAST TWICE DURING THE FIRST SIX MONTHS. SUBSEQUENTLY, INSPECTIONS SHOULD BE CONDUCTED ANNUALLY AND AFTER STORM EVENTS GREATER THAN 2".

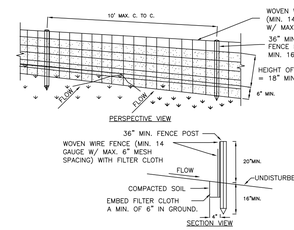


CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY–FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN EVENT.
10. STABILIZED CONSTRUCTION ENTRANCES SHALL BE CONSTRUCTED AND MAINTAINED AT SITE ENTRANCES DURING PHASE I CONSTRUCTION AND AT DRIVEWAY ENTRANCES DURING PHASE II CONSTRUCTION.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

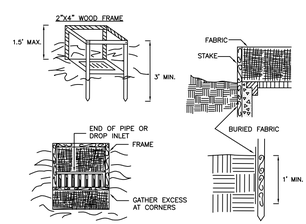


CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER–LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
6. SILT FENCE LOCATIONS AS DEPICTED ON PLANS ARE ILLUSTRATIVE. CONTRACTOR SHALL EXERCISE DILIGENCE WHEN INSTALLING SILT FENCE TO CAPTURE ALL SEDIMENT LADEN RUNOFF.

SILT FENCE DETAIL

NOT TO SCALE



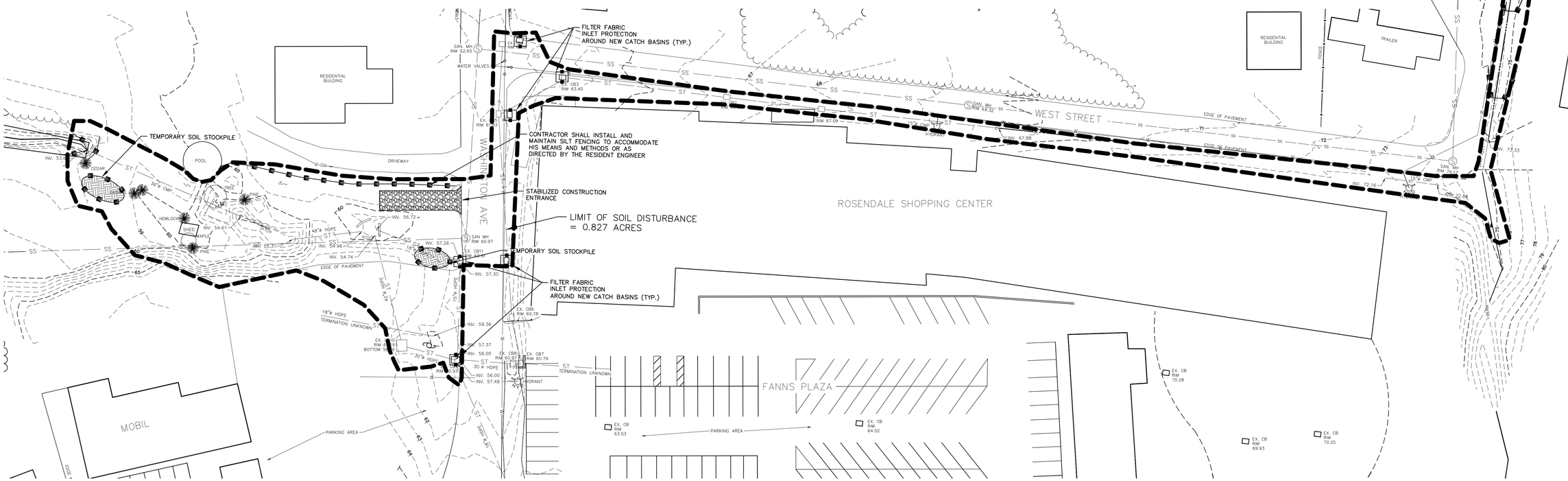
CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40–85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUN DRAINAGE AREA 1 ACRE

FILTER FABRIC INLET PROTECTION

NOT TO SCALE



EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 30'

EROSION AND SEDIMENT CONTROL PLAN – EAST
CONTRACT NO. TS–171

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	SILT FENCE AND CB INLET PROTECTION

NOTE:
The location of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the contractor's failure to exactly locate and preserve any and all underground utilities.

GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. FELL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058741 STATE OF NEW YORK

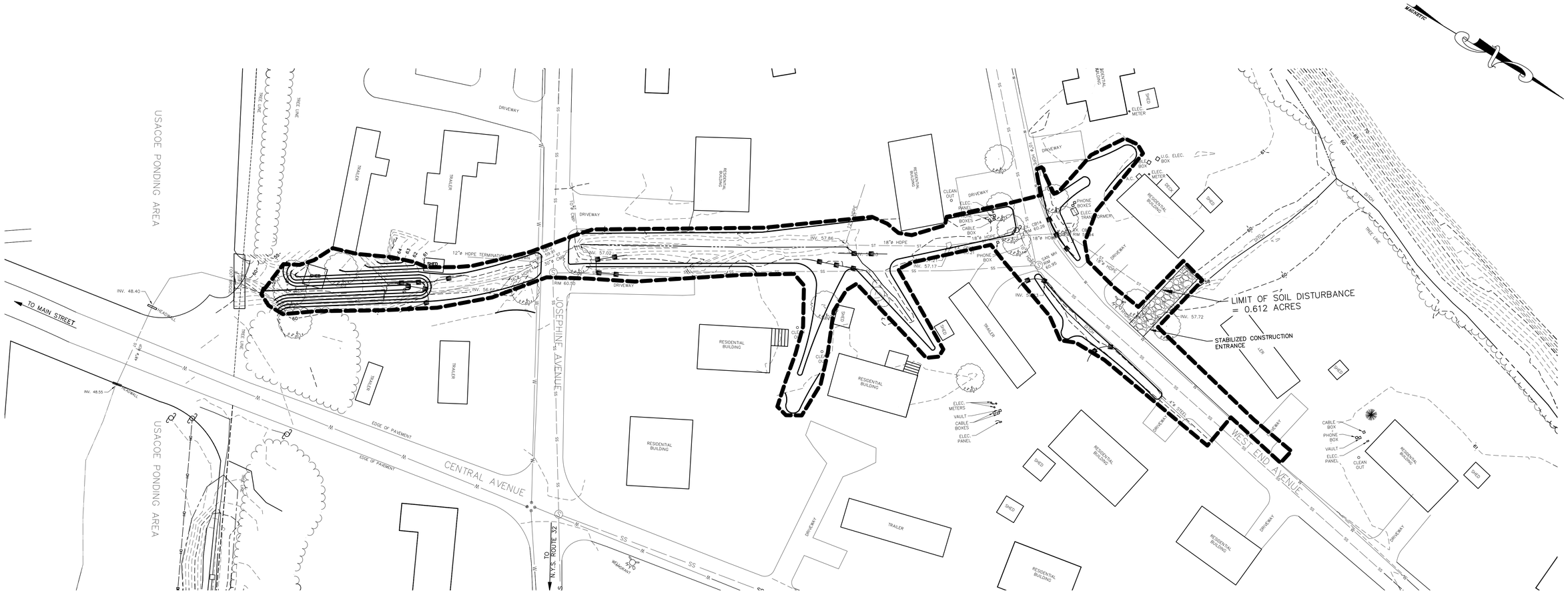
Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845–338–7622 Fax: 845–338–7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2017		14 OF 16
	DWG RJS	CHK JEM	



EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 30'

NOTE:

1. SEE SHEET 14 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
2. CONTRACTOR SHALL INSTALL AND MAINTAIN SILT FENCING TO ACCOMMODATE HIS MEANS AND METHODS OR AS DIRECTED BY THE OWNERS REPRESENTATIVE.
3. SEE SHEET 12 FOR GRADING PLAN.

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EXISTING HYDRANT
- EX. CB1 EXISTING CATCH BASIN
- SANITARY MANHOLE
- MANHOLE
- SILT FENCE AND CB INLET PROTECTION

NOTE:
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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIFER M. LARIOS 058741 STATE OF NEW YORK

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EROSION AND SEDIMENT
CONTROL PLAN – EAST
CONTRACT NO. TS–171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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Phone: 845–338–7622 Fax: 845–338–7660

SCALE	DATE		SHEET NO.
1" = 30'	FEB. 2016		15 OF 16
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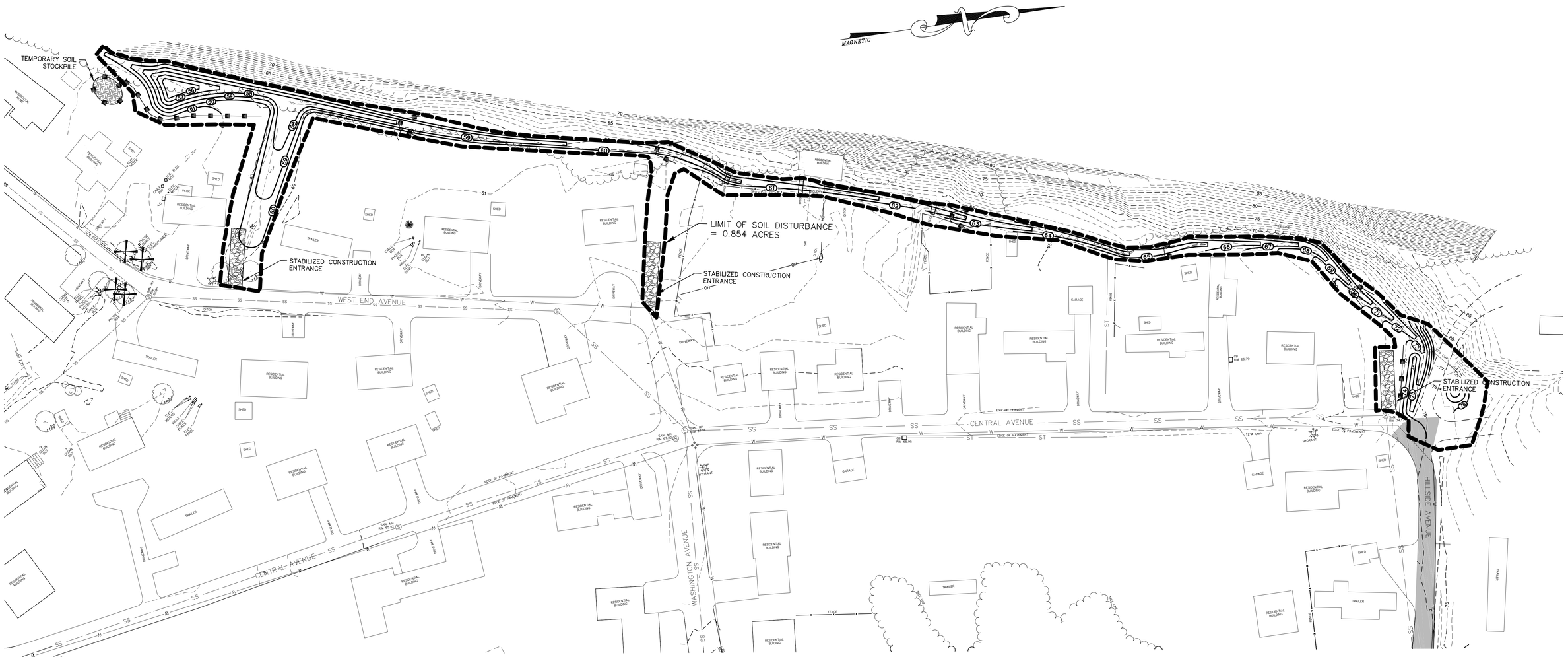

EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 40'

LEGEND

50	CONTOURS (MINOR)
52	CONTOURS (MAJOR)
PL	PROPERTY LINE
SS	EXISTING SANITARY SEWER
ST	EXISTING STORM SEWER
W	EXISTING WATER LINE
	DITCH
	APPROX. TREE LINE
x	FENCE
	UTILITY POLE
	EXISTING HYDRANT
EX. CB1	EXISTING CATCH BASIN
S	SANITARY MANHOLE
M	MANHOLE
	SILT FENCE AND CB INLET PROTECTION

NOTE:
The location of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the contractor's failure to exactly locate and preserve any and all underground utilities.

NOTE:

1. SEE SHEET 14 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
2. CONTRACTOR SHALL INSTALL AND MAINTAIN SILT FENCING TO ACCOMMODATE HIS MEANS AND METHODS OR AS DIRECTED BY THE OWNERS REPRESENTATIVE.
3. SEE SHEET 12 FOR GRADING PLANS.

GRAPHIC SCALE IN FEET

40 0 40

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL #9679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIS M. LARIOS 058747 STATE OF NEW YORK

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EROSION AND SEDIMENT CONTROL PLAN – MOUNTAIN SWALE
CONTRACT NO. TS–171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

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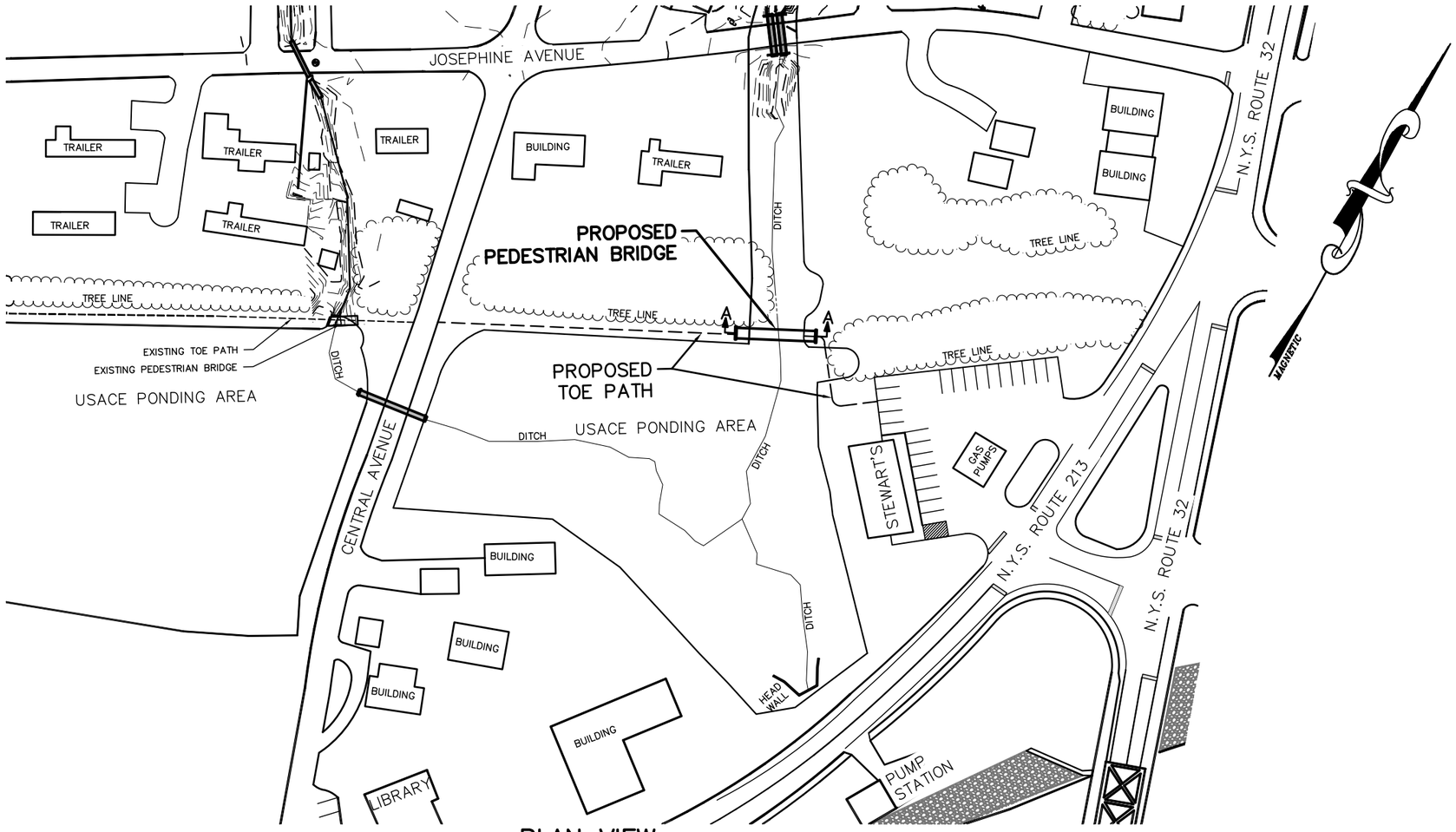
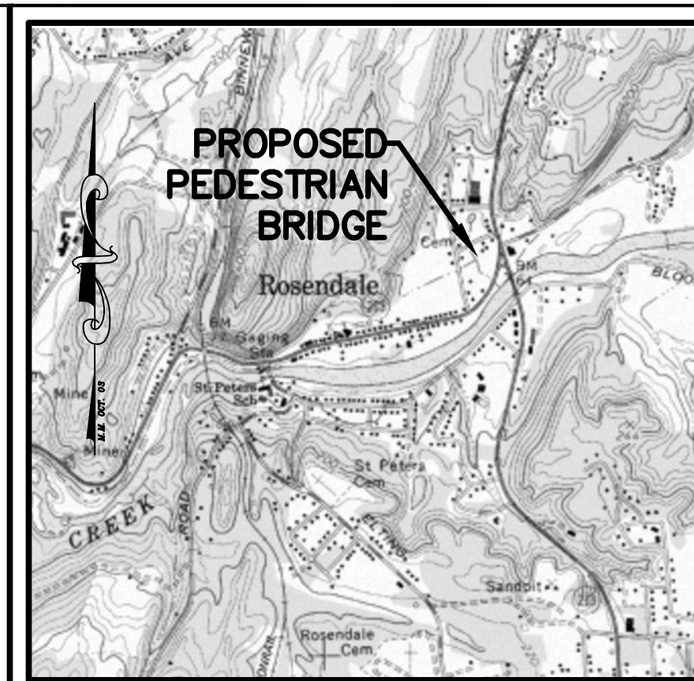
Phone: 845–338–7622 Fax: 845–338–7660

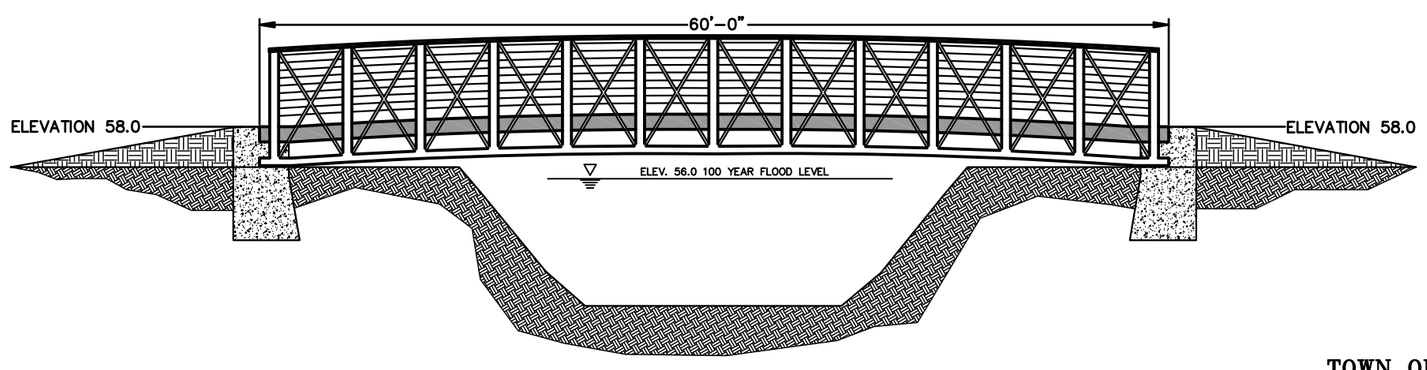
SCALE	DATE		SHEET NO.
1" = 40'	FEB. 2016		16 OF 16
	DWG RJS	CHK JEM	



PLAN VIEW
SCALE: 1" = 100'



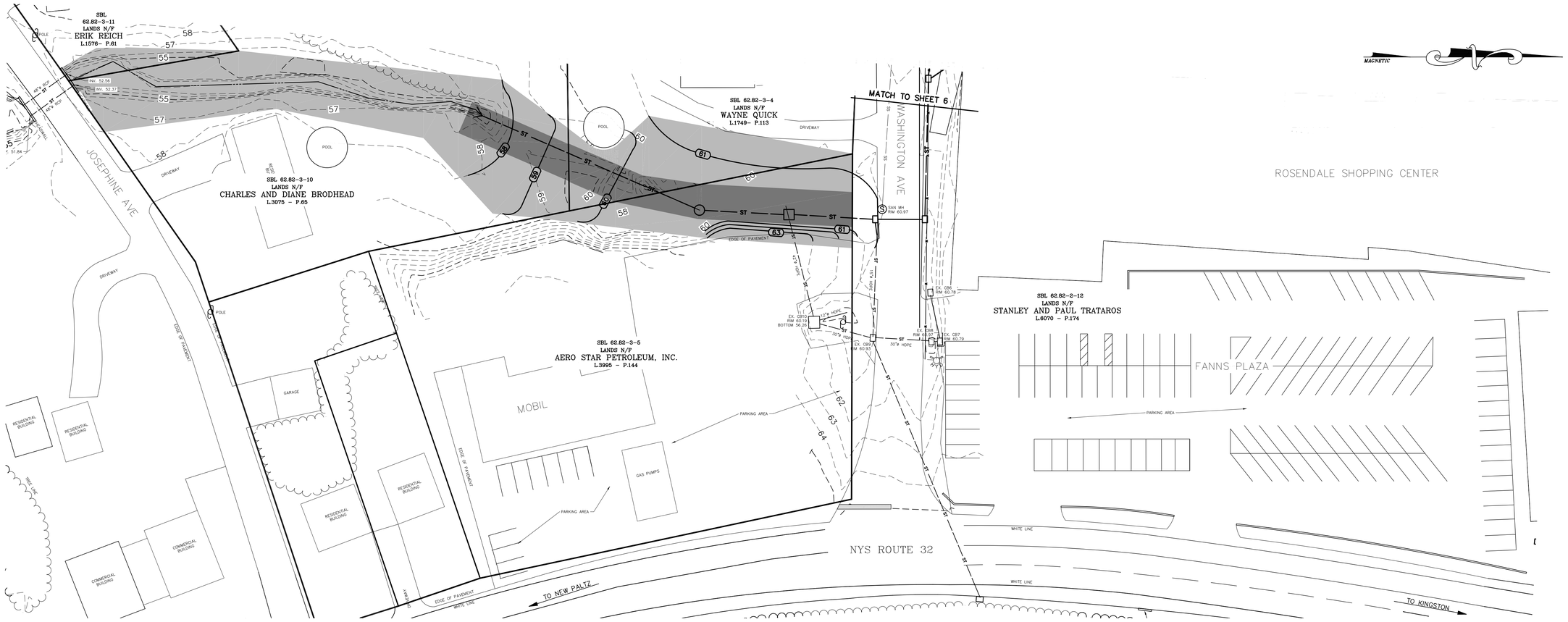
LOCATION MAP
ROSENDALE QUADRANGLE
7.5' MINUTE USGS TOPOGRAPHIC MAP
SCALE: 1" = 2000'



SECTION VIEW A-A
NOT TO SCALE

CHANGE ORDER NO. 1
PEDESTRIAN BRIDGE
WASHINGTON PARK
STORMWATER MITIGATION

TOWN OF ROSENDALE, ULSTER COUNTY, NEW YORK



SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
AERO STAR PETROLEUM INC 62.82-3-5	20' WIDE 0.05 ACRES	WIDTH VARIES 0.07 ACRES
WAYNE QUICK 62.82-3-4	20' WIDE 0.02 ACRES	WIDTH VARIES 0.08 ACRES
CHARLES AND DIANE BRODHEAD 62.82-3-10	20' WIDE 0.03 ACRES	WIDTH VARIES 0.25 ACRES
ERIK REICH 62.82-3-11	NONE	WIDTH VARIES 0.02 ACRES

LEGEND

- 50 — CONTOURS (MINOR)
- 52 — CONTOURS (MAJOR)
- ℄ — PROPERTY LINE
- ST — EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- x — FENCE
- UTILITY POLE
- EX. CB1 — EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- ST — PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- 62 — PROPOSED CONTOUR
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

NOTE:
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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

DRAFT

REQUIRED EASEMENTS
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

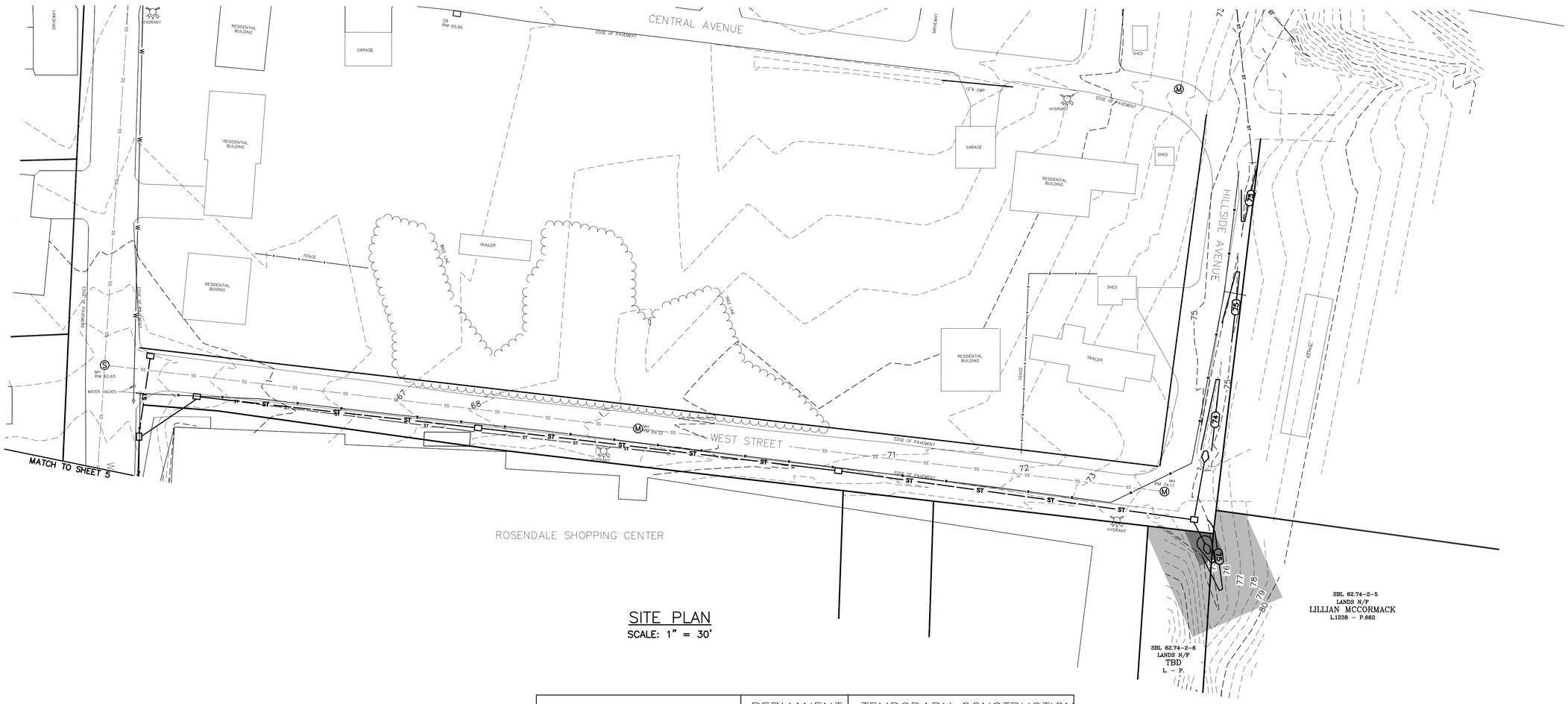
WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE	SHEET NO.
1" = 30'	NOV. 2016	1 OF 4
	DWG RJS / CHK	

MAGNETIC



SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
LILLIAN MCCORMACK 62.74-2-5	20' WIDE 0.001 ACRES	WIDTH VARIES 0.04 ACRES
TBD 62.74-2-6	20' WIDE 0.004 ACRES	WIDTH VARIES 0.03 ACRES

DRAFT

REQUIRED EASEMENTS
EASTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EX. CB1 EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR

GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER BRIAN M. LARIOS 058741 STATE OF NEW YORK

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WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

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ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	NOV. 2016		2 OF 4
	DWG RJS	CHK	

SITE PLAN

SCALE: 1" = 30'

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
LAMONT VANWEZEMAAL 62.82-1-4	20' WIDE 0.04 ACRES	WIDTH VARIES 0.19 ACRES
WASHINGTON EST. DEV. CORP. 62.82-1-12.100	20' WIDE 0.25 ACRES	WIDTH VARIES 0.38 ACRES
CHARLES AND DIANE BRODHEAD 62.82-1-12.100	NONE	WIDTH VARIES 0.02 ACRES
LAURA AND CAMERON HENDRIX 62.82-1-13	NONE	WIDTH VARIES 0.04 ACRES

LEGEND

- CONTOURS (MINOR)
- CONTOURS (MAJOR)
- PROPERTY LINE
- EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- FENCE
- UTILITY POLE
- EX. CB1 EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED CONTOUR
- PROPOSED MOUNTAIN SWALE
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

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GRAPHIC SCALE IN FEET

30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. HILL 49679 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER JENNIG M. LARIOS 058741 STATE OF NEW YORK

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DRAFT

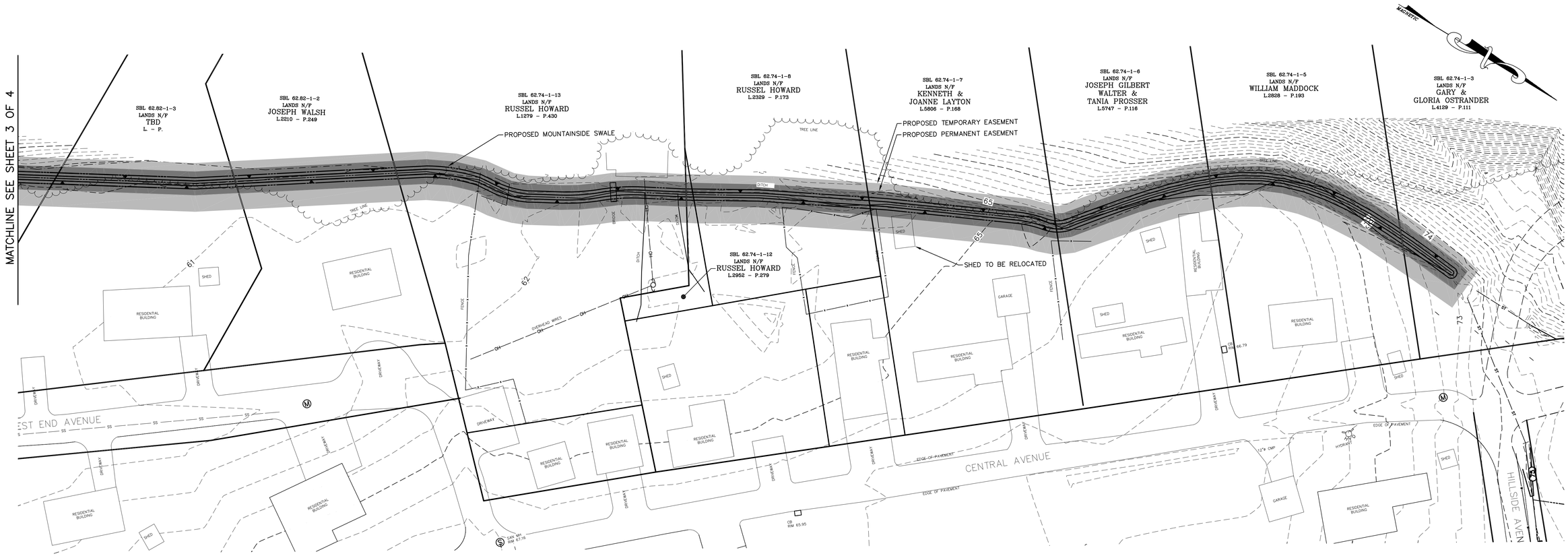
REQUIRED EASEMENTS
WESTERN DRAINAGE SYSTEM
CONTRACT NO. TR-171

WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

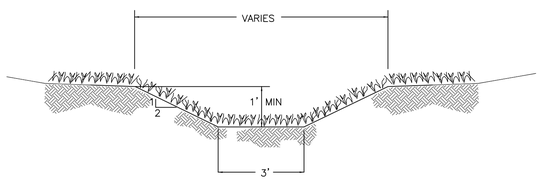
BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	NOV. 2016		3 OF 4
	DWG RJS	CHK	



SITE PLAN

SCALE: 1" = 30'



VEGETATION REQUIREMENTS FOR OPEN CHANNELS
SEED MIXTURE SHALL BE TALL FESCUE OR SMOOTH BROMEGRASS (0.45 LBS/1000 SF), KENTUCKY BLUEGRASS (0.6 LBS/1000 SF) OR PERENNIAL RYEGRASS (0.2 LBS/1000 SF). MULCH SEEDED AREAS. FERTILIZE, LIME AND MOW AS NEEDED TO MAINTAIN DENSE PROTECTIVE COVER.

TYPICAL MOUNTAINSIDE SWALE SECTION

NOT TO SCALE

PROPERTY OWNER/SBL	PERMANENT EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
TBD 62.82-1-3	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
JOSEPH WALSH 62.82-1-2	15' WIDE 0.03 ACRES	15' WIDE 0.03 ACRES
RUSSELL HOWARD 62.74-1-13	15' WIDE 0.06 ACRES	15' WIDE 0.06 ACRES
RUSSELL HOWARD 62.74-1-12	15' WIDE 0.001 ACRES	15' WIDE 0.002 ACRES
RUSSELL HOWARD 62.74-1-8	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
KENNETH & JOANNE LAYTON 62.74-1-7	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
JOSEPH GILBERT 62.74-1-6	15' WIDE 0.03 ACRES	15' WIDE 0.03 ACRES
WILLIAM MADDOCK 62.74-1-5	15' WIDE 0.04 ACRES	15' WIDE 0.04 ACRES
GARY & GLORIA OSTRANDER 62.74-1-3	15' WIDE 0.02 ACRES	15' WIDE 0.02 ACRES

DRAFT

REQUIRED EASEMENTS
MOUNTAINSIDE SWALE
CONTRACT NO. TR-171

LEGEND

- 50 — CONTOURS (MINOR)
- 52 — CONTOURS (MAJOR)
- R — PROPERTY LINE
- ST — EXISTING STORM SEWER
- DITCH
- APPROX. TREE LINE
- x — FENCE
- UTILITY POLE
- EX. CB1 — EXISTING CATCH BASIN
- MANHOLE
- SANITARY MANHOLE
- ST — PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- 65 — PROPOSED CONTOUR
- PROPOSED MOUNTAIN SWALE
- PERMANENT EASEMENT AREA
- TEMPORARY EASEMENT AREA

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GRAPHIC SCALE IN FEET
30 0 30

LICENSED LAND SURVEYOR CHRISTOPHER J. TELL 49629 STATE OF NEW YORK

LICENSED PROFESSIONAL ENGINEER DENNIS M. LARIOS 058747 STATE OF NEW YORK

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WASHINGTON PARK STORMWATER MITIGATION
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF ROSENDALE ULSTER COUNTY NEW YORK

DATE	REVISION RECORD

BRINNIER & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
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Phone: 845-338-7622 Fax: 845-338-7660

SCALE	DATE		SHEET NO.
1" = 30'	NOV. 2016		4 OF 4
	DWG RJS	CHK	

NEW YORK STATE OF OPPORTUNITY.
Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ROSE HARVEY
Commissioner

March 16, 2017

Ms. Dina Peoples
Geologist II
Tectonic Engineering
70 Pleasant Hill Road
Mountainville, NY 10953

Re: HUD
Washington Park Stormwater Mitigation Project
Town of Rosendale, Ulster County, NY
17PR01469

Dear Ms. Peoples:

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). We have reviewed the project in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

Based upon this review, the New York SHPO has determined that no historic properties will be affected by this undertaking.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

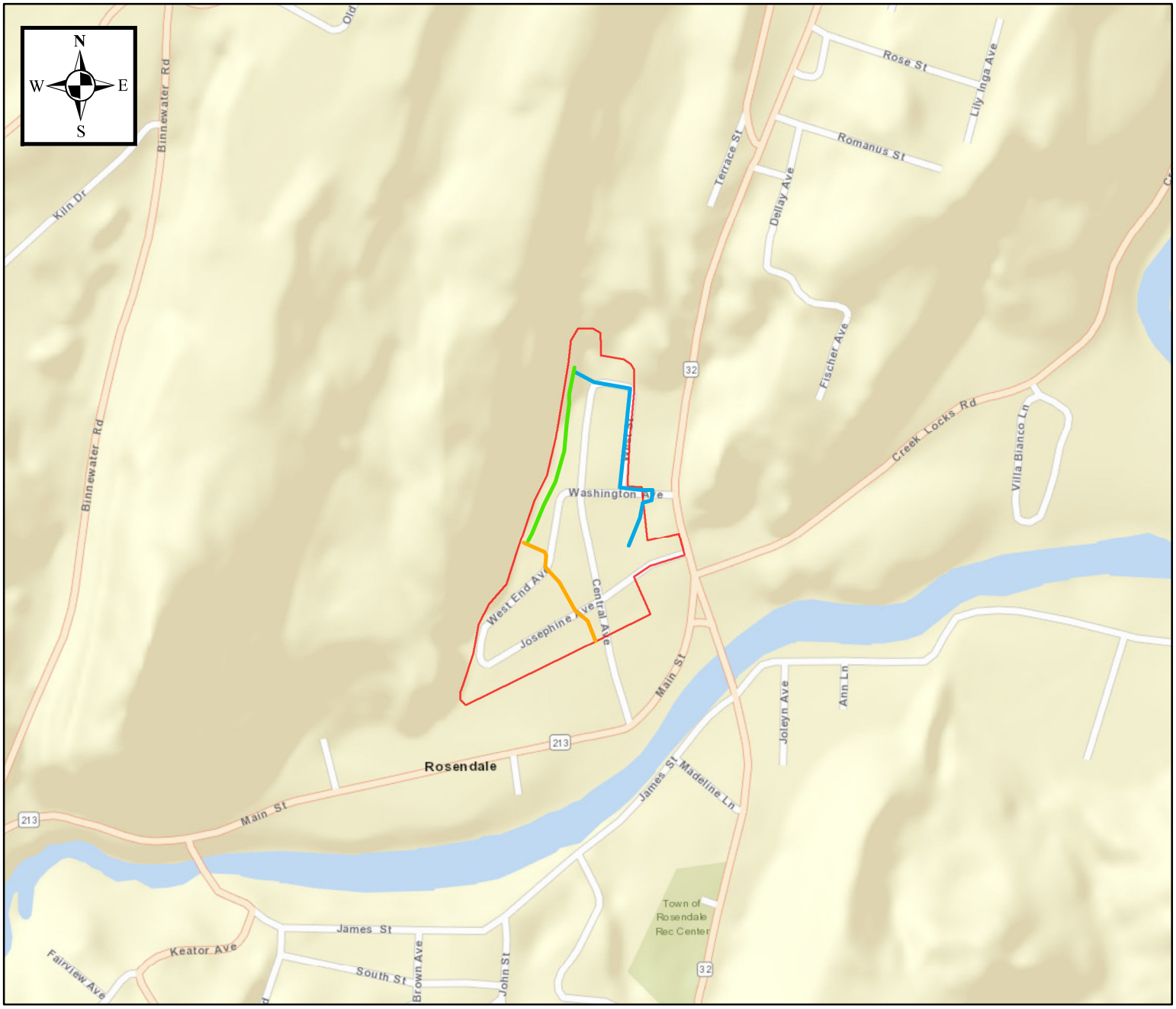
Michael F. Lynch, P.E., AIA

Director, Division for Historic Preservation

Attachment 9

EPA Sole Source Aquifer Map

EPA Sole Source Aquifer Map



TECTONIC
Practical Solutions, Exceptional Service

0 500 1,000 2,000 Feet

1:10,000

Legend

- Eastern Drainage System
- Mountain Swale
- Western Drainage System
- Washington Park (Approximate Boundary)
- EPA Sole Source Aquifer

Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

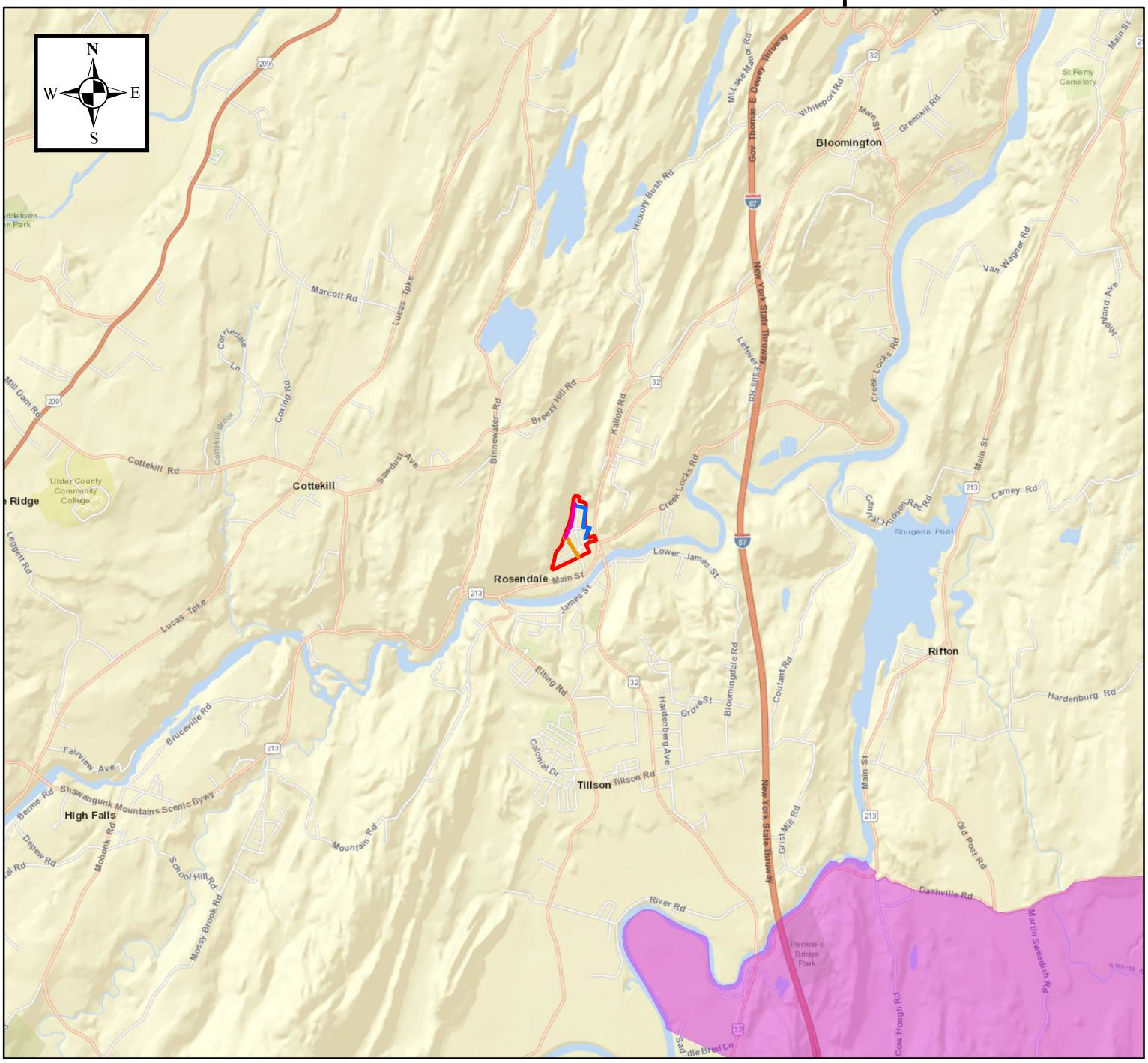
Created: 3/3/2017
Source data: Sole Source Aquifer map data provided by EPA.

https://www.epa.gov/dwssa

Attachment 10

Potential Environmental Justice Areas Map

Environmental Justice Map



TECTONIC

Practical Solutions, Exceptional Service

0 2,500 5,000 10,000 Feet

1:50,000

Washington Park Stormwater Mitigation
Washington Park Neighborhood
Hillside Avenue to Josephine Avenue
Town of Rosendale
Ulster County, New York

Created: 3/3/2017

Potential Environmental Justice Areas provided by The Office of Environmental Justice and available at http://www.dec.ny.gov/public/899.html

Legend

Approximate Work Locations

- **Eastern Drainage System**
- **Mountain Swale**
- **Western Drainage System**
- **Washington Park (Approximate Boundary)**
- **Potential Environmental Justice Areas**

Attachment 11

Permit Documentation

Note: Any permits received for this project will be appended to the environmental review record at a later date.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water, Bureau of Permits
625 Broadway, Albany, New York 12233-3505
P: (518) 402-8111 | F: (518) 402-9029
www.dec.ny.gov

5/10/2017

ROSENDALE, TOWN OF
JEANNE WALSH
1915 LUCAS AVENUE
COTTEKILL, NY 12419-

Re ACKNOWLEDGMENT of NOTICE of INTENT for Coverage Under SPDES General Permit for Storm Water Discharges from CONSTRUCTION ACTIVITY General Permit No. GP-0-15-002

Dear Prospective Permittee:

This is to acknowledge that the New York State Department of Environmental Conservation (Department) has received a complete Notice of Intent (NOI) for coverage under General Permit No. GP-0-15-002 for the construction activities located at:

WASHINGTON PARK STORMWATER MITIGATION
WASHINGTON AVENUE
ROSENDALE, NY 12472- **County: ULSTER**

Pursuant to Environmental Conservation Law (ECL) Article 17, Titles 7 and 8, ECL Article 70, discharges in accordance with GP-0-15-002 from the above construction site will be authorized **10** business days from **05/08/2017**, which is the date we received your final NOI, unless notified differently by the Department.

The permit identification number for this site is: **NYR11C174**. Be sure to include this permit identification number on any forms or correspondence you send us. When coverage under the permit is no longer needed, you must submit a Notice of Termination to the Department.

This authorization is conditioned upon the following:

1. The information submitted in the NOI received by the Department on **05/08/2017** is accurate and complete.

2. You have developed a Storm Water Pollution Prevention Plan (SWPPP) that complies with GP-0-15-002 which must be implemented as the first element of construction at the above-noted construction site.

3. Activities related to the above construction site comply with all other requirements of GP-0-15-002.

received 5/16/17

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

4. Payment of the annual $110 regulatory fee, which is billed separately by the Department in the late fall. The regulatory fee covers a period of one calendar year. In addition, since September 1, 2004, construction stormwater permittees have been assessed an initial authorization fee which is now $110 per acre of land disturbed and $675 per acre of future impervious area. The initial authorization fee covers the duration of the authorized disturbance.

5. When applicable, project review pursuant to the State Environmental Quality Review Act (SEQRA) has been satisifed.

6. You have obtained all necessary Department permits subject to the Uniform Procedures Act (UPA). You should check with your Regional Permit Administrator for further information.

***Note: Construction activities cannot commence until project review pursuant to SEQRA has been satisfied, when SEQRA is applicable; and, where required, all necessary Department permits subject to the UPA have been obtained.**

Please be advised that the Department may request a copy of your SWPPP for review.

Should you have any questions regarding any aspect of the requirements specified in GP-0-15-002, please contact Dave Gasper at (518) 402-8114 or the undersigned at (518) 402-8109.

Sincerely,

Toni Cioffi

Toni Cioffi
Environmental Program Specialist 1

PLEASE NOTE: EPA HAS FINALIZED THE eREPORTING RULE; AND, IN THE NEAR FUTURE, ALL NOIs WILL HAVE TO BE SUBMITTED ELECTRONICALLY.
BY FILING AN NOI ELECTRONICALLY, A PROJECT CAN TYPICALLY GAIN COVERAGE IN 5 BUSINESS DAYS COMPARED TO 10 BUSINESS DAYS FOR THE PAPER NOI.
INFORMATION ON THE eNOI CAN BE FOUND ON OUR WEBSITE AT:
http://www.dec.ny.gov/chemical/43133.html UNDER "FORMS."

cc RWE - 3
SWPPP Preparer

BRINNIER AND LARIOS, PC
DENNIS M. LARIOS, PE
67 MAIDEN LANE
KINGSTON, NY 12401-

Attachment 12

SEQR Documentation

Short Environmental Assessment Form
Part 1 - Project Information

Instructions for Completing

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

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

Part 1 - Project and Sponsor Information

NYS Homes and Community Renewal's Governor's Office of Storm Recovery (GOSR)

Name of Action or Project:

CDBG-DR NY Rising Community Reconstruction Program- Washington Park Stormwater Mitigation Project, Rosendale, New York

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

Washington Park residential area located northwest of the intersection of New York State (NYS) Route 32 and NYS Route 213

Brief Description of Proposed Action:

The Washington Park Stormwater Mitigation Project involves the installation of culvert pipes, drainage ditches, swales, catch basins, a storm sewer manhole, and a pedestrian bridge in the Town of Rosendale, Ulster County, New York. Washington Park has been subjected to historic, chronic flooding during large rain events. The proposed drainage improvements will effectively convey water during 50-year storm events and alleviate chronic flooding problems.

Name of Applicant or Sponsor:	Telephone: (845) 658-3159, Ext. 3
Applicant- Town of Rosendale, NY (Jeanne L. Walsh, Supervisor) Sponsor- GOSR	E-Mail: supervisor@townofrosendale.com

Address:

1915 Lucas Avenue

City/PO:	State:	Zip Code:
Cottekill	New York	12419

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other governmental Agency? If Yes, list agency(s) name and permit or approval: NYSDEC 401 Water Quality Certification, NYSDEC SPDES permits, and USACE Nationwide Permit 43. NYSHCR CDBG-DR funding	☐	☑

3.a. Total acreage of the site of the proposed action? 2.29 acres

b. Total acreage to be physically disturbed? 2.29 acres

c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 0.11 acres

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

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

☐ Forest ☐ Agriculture ☐ Aquatic ☑ Other (specify): Roadway/ Municipal

☐ Parkland

	NO	YES	N/A
5. Is the proposed action,			
a. A permitted use under the zoning regulations?	☐	✓	☐
b. Consistent with the adopted comprehensive plan?	☐	✓	☐

	NO	YES
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	✓
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area? If Yes, identify: _____	✓	☐
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	✓	☐
b. Are public transportation service(s) available at or near the site of the proposed action?	☐	✓
c. Are any pedestrian accommodations or bicycle routes available on or near site of the proposed action?	☐	✓
9. Does the proposed action meet or exceed the state energy code requirements? If the proposed action will exceed requirements, describe design features and technologies: Not applicable. This project does not involve work on residential and commercial buildings, or building subsystems. Thus, this project is not required to comply with the Energy Code.	✓	☐
10. Will the proposed action connect to an existing public/private water supply? If No, describe method for providing potable water: Not applicable. The project involves installation of stormwater drainage systems and a pedestrian bridge.	✓	☐
11. Will the proposed action connect to existing wastewater utilities? If No, describe method for providing wastewater treatment: Not applicable. The project involves installation of stormwater drainage systems and a pedestrian bridge.	✓	☐
12. a. Does the site contain a structure that is listed on either the State or National Register of Historic Places?	✓	☐
b. Is the proposed action located in an archeological sensitive area?	☐	✓
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	☐	✓
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody? If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: USACE ponding area located on the south side of the Washington Park area classified as Federal Freshwater Emergent Wetland and USFWS NWI mapped riverine wetlands connect those freshwater emergent wetlands. No alteration is proposed for the existing mapped wetlands.	✓	☐

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

☐ Shoreline ☐ Forest ☐ Agricultural/grasslands ☐ Early mid-successional

☑ Wetland ☐ Urban ☑ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	☐	✓
16. Is the project site located in the 100 year flood plain?	✓	☐
17. Will the proposed action create storm water discharge, either from point or non-point sources? If Yes, a. Will storm water discharges flow to adjacent properties? ☑ NO ☐ YES	☐	✓
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)? If Yes, briefly describe: ☐ NO ☑ YES The project involves the construction of stormwater drainage system in the project area in Washington Park. A Stormwater Management Pollution Prevention Plan for Construction-Related Activities has been drafted for the project actions, detailing the erosion and sediment controls, as well as additional stormwater controls.		

	NO	YES
18. Does the proposed action include construction or other activities that result in the impoundment of water or other liquids (e.g. retention pond, waste lagoon, dam)? If Yes, explain purpose and size: No, new water impoundment areas will be constructed, but the project includes the construction of a new storm sewer that connects the Washington Avenue stormwater sewer system to to the USACE ponding area located south of the proposed project area.	✓	
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility? If Yes, describe:	✓	
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste? If Yes, describe: Two State superfund sites, 356031 - 1083 Route 32 and 356050 - Rosendale Cleaners, across a hydrologic barrier (Rondout Creek) from the project area. Additionally, monitoring wells installed indicate no impacts downgradient of the sites.		✓

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

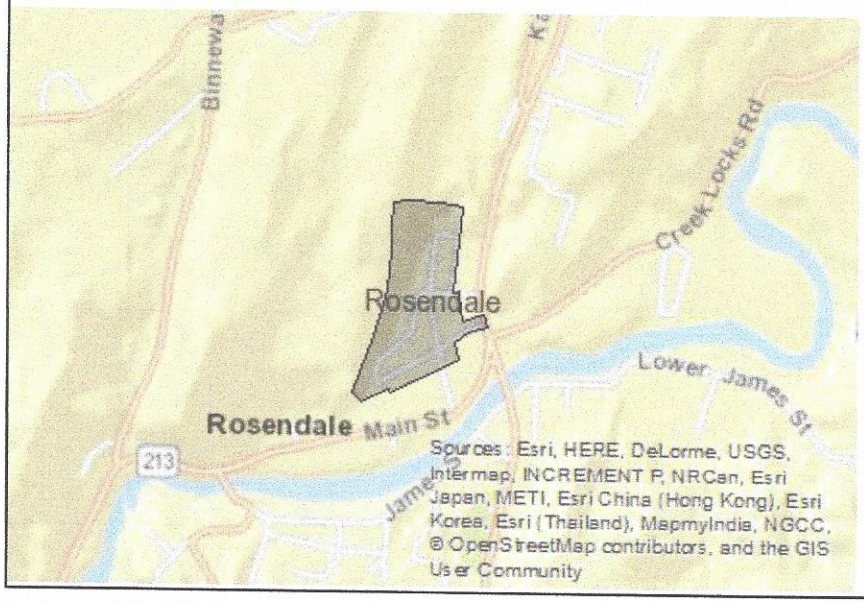
Applicant/sponsor name: Jeanne L. Walsh, Town Supervisor Date: 3/20/17

Signature: Jeanne L Walsh

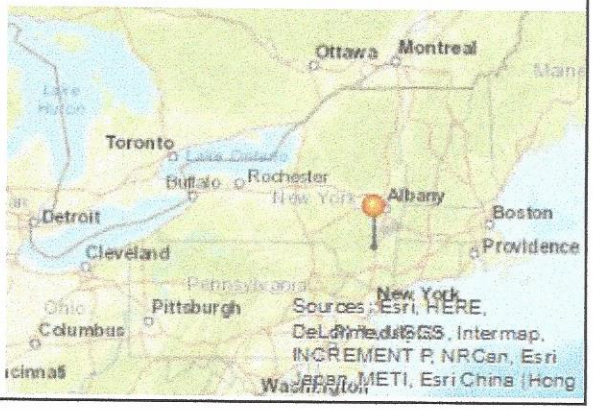
PRINT FORM

EAF Mapper Summary Report

Friday, March 10, 2017 2:14 PM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.



Part 1 / Question 7 [Critical Environmental Area]	No
Part 1 / Question 12a [National Register of Historic Places]	No
Part 1 / Question 12b [Archeological Sites]	Yes
Part 1 / Question 13a [Wetlands or Other Regulated Waterbodies]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
Part 1 / Question 15 [Threatened or Endangered Animal]	Yes
Part 1 / Question 16 [100 Year Flood Plain]	No
Part 1 / Question 20 [Remediation Site]	Yes

Agency Use Only [If applicable]

Project: Washington Park Stormwater

Date: 05/26/2017

Short Environmental Assessment Form
Part 2 - Impact Assessment

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

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

Agency Use Only [If applicable]

Project: Washington Park

Date: 05/26/2017

Short Environmental Assessment Form
Part 3 Determination of Significance

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

Please see expanded Part 3 Determination of Significance found on the following pages.

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

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

Governor's Office of Storm Recovery (acting for NYS HTFC)	05/26/2017
Name of Lead Agency	Date
Lori A. Shirley	Director, Bureau of Env. Review and Assessment
Print or Type Name of Responsible Officer in Lead Agency	Title of Responsible Officer
Lori A Shirley	
Signature of Responsible Officer in Lead Agency	Signature of Preparer (if different from Responsible Officer)

Governor's Office of Storm Recovery

ANDREW M. CUOMO
Governor

LISA BOVA-HIATT
Executive Director

STATE ENVIRONMENTAL QUALITY REVIEW ACT
DETERMINATION OF NON-SIGNIFICANCE (NEGATIVE DECLARATION)

WASHINGTON PARK STORMWATER MITIGATION PROJECT

DATE: May 26, 2017

NAME OF ACTION: Washington Park Stormwater Mitigation Project (Proposed Project)

LOCATION: Washington Park Neighborhood, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, New York 12472

SEQRA CLASSIFICATION: [ ] Type I *(ENB Required)*; [X] Unlisted

REVIEW TYPE: [X] Coordinated; [ ] Uncoordinated

DETERMINATION OF SIGNIFICANCE: [X] Negative Declaration; [ ] Positive Declaration

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The Governor's Office of Storm Recovery ("GOSR"), an office of New York State Homes and Community Renewal's Housing Trust Fund Corporation ("HTFC"), has established Lead Agency status pursuant to the State Environmental Quality Review Act ("SEQRA") (ECL Sections 3- 0301(1)(b), 3-0301(2)(m) and 8-0113 and 6 NYCRR Part 617) for the environmental review of the proposed Washington Park Stormwater Mitigation Project ("Proposed Project") located in the Washington Park Neighborhood, Hillside Avenue to Josephine Avenue, Town of Rosendale, Ulster County, New York 12472. In accordance with SEQRA and its implementing regulations found at 6 NYCRR Part 617, GOSR has established itself as SEQRA lead agency and has classified the proposed action an Unlisted Action. A short Environmental Assessment Form (EAF) Part 1 regarding the proposed action has been circulated for review and comment to interested and involved agencies. GOSR has evaluated the criteria found under 6 NYCRR 617.7(c), completed Parts 2 and 3 of the EAF, and determined that the proposed action would not result in significant environmental impacts. This memo is incorporated by reference into Part 3 of the EAF and serves as the rationale for GOSR's determination of significance.

The Proposed Project:

The Proposed Project involves U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant – Disaster Recovery (CDBG-DR) program funding proposed for the improvement of two defined drainageways that cross through the Washington Park neighborhood and construction of a pedestrian bridge. The total project cost is $1,137,000.00 to be paid for with CDBG-DR

funds toward implementing the Proposed Project. The Eastern Drainage System consists of runoff from a mountain to the north and runoff from Fann's Plaza conveyed by storm sewers to an existing United States Army Corps of Engineers (USACE) flood control ponding area located on the south side of the Proposed Project site. The Western Drainage System consists of runoff from a north-south running mountain ridge to the west, conveyed via a swale at the base of the mountainridge to a storm sewer system that crosses under West End Avenue and Josephine Avenue to an existing USACE ponding area on the west side of Central Avenue. Further details on the improvements to the Eastern and Western Drainage Systems are discussed below. The Proposed Project will also involve the construction of a pedestrian bridge over a ditch that is located between Central Avenue and NYS Route 32. The pedestrian bridge will be 60 feet long and will be installed at an elevation of 58 feet, which is 2 feet above the 100-year Base Flood Elevation (BFE) of 56 feet.

Improvement of the Eastern Drainage System will involve the construction of the following: a drainage swale along Hillside Avenue; a new storm sewer along West Street (from Hillside Avenue to Washington Avenue); a new storm sewer on Washington Avenue (from West Street to where it crosses under Washington Avenue); and a new storm sewer from Washington Avenue to the USACE ponding area. An existing USACE ponding area will also be regraded to provide a uniform alignment and cross sectional area that is consistent with the original USACE Rondout Creek Flood Control design. Proposed Eastern Drainage System improvements will include the installation of 181 linear feet (LF) of 48" diameter high-density polyethylene (HDPE) culvert pipe, 46 LF of 36" diameter HDPE culvert pipe, 745 LF of 24" diameter HDPE culvert pipe, 46 LF of 18" diameter HDPE culvert pipe, nine catch basins, and one storm sewer manhole. There are a total of eight trees located east of NYS Route 32 and south of Washington Avenue that will be removed for project construction. These trees are situated between residential and commercial properties.

Improvement of the Western Drainage System will involve the construction of a drainage swale along the mountainside from the intersection of Central Avenue and Hillside Avenue to SBL# 62.82-1-4 (37 West End Avenue) and a new storm sewer from SBL# 62.82-1-4 (37 West End Avenue) to the existing USACE ponding area on the south side of Josephine Avenue. The Western Drainage System will be designed with a filter fabric lined trench and one perforated 30" HDPE pipe to provide positive relief of any potential shallow groundwater levels. Shallow groundwater would drain by gravity through a one-foot thick stone layer under the pipe and the perforated pipe. Proposed Western Drainage System improvements will include the installation of 1,002 LF of 30" diameter HDPE culvert pipe (dual culvert 501 LF) and five catch basins. The proposed mountainside drainage swale crosses through nine private properties. During project construction, four trees will be removed from West End Avenue and two trees will be removed on Josephine Avenue, where the proposed drainage system would intersect the roadway. These trees are located in the right-of-way adjacent to residential properties. Temporary construction easements and permanent drainage maintenance easements will have to be obtained.

Purpose and Need:

The CDBG-DR funding assistance will provide for the installation of stormwater mitigation systems and a pedestrian bridge in the Town of Rosendale to improve stormwater drainage along Washington Park to address flooding during heavy rainfall events. During Hurricane Irene and Tropical Storm Lee, the Washington Park neighborhood was inundated by stormwater which could not be conveyed out of the area by the existing stormwater infrastructure. This area is currently served by municipal stormwater drainage and open ditches that are easily overwhelmed by heavy rain events, which has resulted in the residents being stranded by high water conditions and prevented emergency responders from providing services beyond the flooded area. Therefore, the Proposed Project activities are urgently needed to greatly reduce flood risk and provide for a more timely response during future disaster events. The Proposed Project will

mitigate localized flooding that occurs during heavy rainfall events, such as those experienced in the neighborhood during Hurricane Irene and Tropical Storm Lee.

Existing Conditions:

The Washington Park neighborhood is located west of NYS Route 32 and north of the USACE ponding area located north of Main Street. Washington Park is a residential neighborhood in the Town of Rosendale with thirty-eight residences that are a combination of single-family residential buildings and manufactured homes, and one commercial property. Washington Park is situated at the base of a mountain ridge, with the land generally trending north to south at a 2 percent to 5 percent slope. There are two defined drainageways that cross through Washington Park, where stormwater runoff is conveyed by storm sewers to the USACE ponding area located on the south side of the site. This Proposed Project site is located in an area that is primarily residential, with businesses located immediately east of the Washington Park neighborhood.

Funding:

The total Proposed Project cost is estimated at $1,137,000.00. GOSR proposes to allocate funding pursuant to the U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant-Disaster Recovery (CDBG-DR) program as authorized by the Disaster Relief Appropriations Act of 2013 (Public Law 113-2, approved January 29, 2013). The NYS Housing Trust Fund Corporation (HTFC), which administers the CDBG-DR program funds on behalf of GOSR, intends to approve funding for the Proposed Project as described in this notice.

Environmental Considerations:

The SEQRA EAF Parts I and II assessed multiple resource topics, and no potential impacts were identified. The SEQRA analysis finds that the Proposed Project will not result in a significant adverse environmental impact.

Endangered Species (NYSDEC) –

A formal request was submitted to the NYSDEC Natural Heritage Program (NHP) for records of threatened or endangered species at the Proposed Project site. On March 24, 2017, a response was received from the NHP indicating their database contained records of rare or state-listed animals or plants, or significant natural communities at or within the immediate vicinity of the proposed project site. These records indicated the endangered Indiana Bat and threatened Northern Long-eared Bat have been documented about 0.5 mile from the Proposed Project site, with individuals potentially travelling 2.5 miles or more from documented locations. Also, the NHP response indicated that a high quality occurrence of the rare community type of Limestone Woodland is present in the greater Rosendale woods, located west of the proposed project site. However, Limestone Woodlands are not present at the Proposed Project site. A follow up jurisdictional review letter from NYSDEC received on April 10, 2017 further specified that the project area is within 2.5 miles of multiple hibernacula of both bat species, the closest of which is approximately 0.70 mile from the project location.

Endangered Species (USFWS) –

The USFWS lists the threatened Northern Long-eared Bat (NLEB) (*Myotis septentrionalis*), the endangered Indiana bat *(Myotis sodalis)*, the threatened Bog Turtle *(Clemmys muhlenbergii)*, and migratory birds of concern as species with the potential to occur within the vicinity of the Proposed Project site. The IPaC Resource List indicates that there are 19 species of migratory birds protected by the MBTA and BGEPA

that could potentially be affected by the Proposed Project, including the bald eagle (*Haliaeetus leucocephalus*). However, there are no known breeding bald eagles within the vicinity of the Proposed Project site; therefore, no adverse impacts to breeding bald eagles are expected to occur as a result of the Proposed Project. There is no habitat for the Bog Turtle in the Proposed Project area and migratory birds are expected to temporarily leave the area during construction due to noise and disturbance. Therefore, the Proposed Project is likely to have no effect on the Bog Turtle and migratory birds of concern. The USFWS concurred with this no effect determination and recommended that if bald eagles are found within the Proposed Project area, then GOSR and the Town of Rosendale should follow the Bald Eagle Management Guidelines on the USFWS website.

As noted by the NHP and USFWS, the main impact of concern for the listed bat species is the removal of potential swarming and/or staging habitat and roost trees. Therefore, GOSR performed a Phase I Summer Habitat Assessment to evaluate the 14 trees that need to be removed for project construction. During the Summer Habitat field inspection, it was confirmed that the Proposed Project is taking place entirely within a residential area without forest cover. All trees proposed for removal are live without noticeable exfoliating bark. Therefore, due to the lack of contiguous forest within this area of residential development, there is little chance that Northern Long-eared or Indiana Bats will be roosting or foraging in the area. Tree removal is anticipated to occur during the active season but outside of the June to July pup season.

GOSR will arrange a visual emergence survey to be conducted at each tree the evening before tree cutting to determine the presence or absence of the listed bat species. If no listed bat species are observed, then tree cutting will be completed the following day. If either listed bat species is observed, then GOSR through consultation and coordination with the USFWS will identify mitigation actions to alleviate any potential adverse effects to the observed bat specie(s). GOSR has determined that the tree removal may affect, but is not likely to adversely affect the listed bat species. The USFWS concurred with this determination based on the project location (no known nearby roosts), minimal amount of tree removal, and incorporation of a visual survey.

Standard Requirements:

Any change to the Proposed Project as described will require re-evaluation by GOSR's Certifying Officer for compliance with SEQRA and other law, regulations and policies.

This review will not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize federal funding.

If there is any unanticipated discovery of endangered or threatened species, cultural resources, soils contamination, or any other conditions affecting the factors, executive orders, stipulations, and/ or regulations discussed within this assessment, work shall be halted immediately and the appropriate agency will be consulted before work can be resumed.

Additional Mitigation Measures:

To the extent required and/or practicable, any approval of the Proposed Project is subject to following mitigation measures being adhered to by the grant recipient to minimize environmental impacts and create a more sustainable project:

- Construction and demolition – to the maximum extent possible, utilize local and recycled materials in construction process and recycle materials generated onsite.

- Clean diesel – implement diesel controls, cleaner fuel, and cleaner construction practices for on-road and off-road equipment used for transportation, soil movement, or other construction activities, including:
    - Strategies and technologies that reduce unnecessary idling, including auxiliary power units, the use of electric equipment, and strict enforcement of idling limits; and
    - Use of clean diesel through add-on control technologies like diesel particulate filters and diesel oxidation catalysts, repowers, or newer, cleaner equipment.

- Stormwater – utilize low impact development (LID) principles such as minimizing effective imperviousness to create site drainage, and the planting of native and non-invasive vegetation on the Project site for stormwater management purposes. Other LID practices can include bioretention facilities, rain gardens, vegetated rooftops, rain barrels, and permeable pavements;

- Cost-efficient, environmentally friendly landscaping – EPA's GreenScapes program provides cost-efficient and environmentally friendly solutions for landscaping;

- Energy efficiency – energy-efficient technologies should be incorporated into the station house when possible; and

- Water conservation and efficiency – promote water conservation and efficiency through use of water efficient products (toilets, faucets, showerheads) and practices. Consider use of products with the WaterSense label where appropriate.

In addition to the factors considered above, the GOSR considered the following guidance from the State Environmental Quality Review Act and its implementing regulations and determined that the Proposed Project would:

(i) Not result in "a substantial adverse change in existing air quality, ground or surface water quality or quantity, traffic or noise levels; a substantial increase in solid waste production; a substantial increase in potential for erosion, flooding, leaching or drainage problems;" (§617.7(c)(1)(i))

(ii) Not result in "the removal or destruction of large quantities of vegetation or fauna; substantial interference with the movement of any resident or migratory fish or wildlife species; impacts on a significant habitat area; substantial adverse impacts on a threatened or endangered species of animal or plant, or the habitat of such a species; or other significant adverse impacts to natural resources;"(§617.7(c)(1)(iii))

(iii) Not result in "the impairment of the environmental characteristics of a Critical Environmental Area as designated pursuant to subdivision 617.14(g) of this Part;" (§617.7(c)(1)(iii))

(iv) Not result in "the creation of a material conflict with a community's current plans or goals as officially approved or adopted;" (§617.7(c)(1)(iv))

(v) Not result in "the impairment of the character or quality of important historical, archaeological, architectural, or aesthetic resources or of existing community or neighborhood character;" (§617.7(c)(1)(v))

(vi) Not result in "a major change in the use of either the quantity or type of energy;" (§617.7(c)(1)(vi))

(vii) Not result in "the creation of a hazard to human health;" (§617.7(c)(1)(vii))

(viii) Not result in "a substantial change in the use, or intensity of use, of land including agricultural, open space or recreational resources, or in its capacity to support existing uses;" (§617.7(c)(1)(viii))

(ix) Not result in "the encouraging or attracting of a large number of people to a place or places for more than a few days, compared to the number of people who would come to such place absent the action;" (§617.7(c)(1)(ix))

(x) Not result in "the creation of a material demand for other actions that would result in one of the above consequences;" (§617.7(c)(1)(x))

(xi) Not result in "changes in two or more elements of the environment, no one of which has a significant impact on the environment, but when considered together result in a substantial adverse impact on the environment; or (§617.7(c)(1)(xi))

Therefore, GOSR, acting as Lead Agency, and having prepared a short EAF, has determined that the Proposed Project will not have a significant effect on the environment and a Draft Environmental Impact Statement will not need to be prepared.

Lori A. Shirley
Director
Bureau of Environmental Review and Assessment
Governor's Office of Storm Recovery
New York State Homes & Community Renewal
38-40 State Street, Hampton Plaza, Albany, NY 12207
(518) 474-0755

Date: May 26, 2017

Attachments:
Environmental Assessment Form (Parts 1, 2 and 3)
Lead Agency Letter Sent
Negative Declaration Distribution List

Governor's Office of Storm Recovery

ANDREW M. CUOMO
Governor

LISA BOVA-HIATT
Executive Director

March 21, 2017

Re: Lead Agency Designation for the Environmental Review of Washington Park Stormwater Mitigation Project, Town of Rosendale, Ulster County, New York

Dear Involved/ Interested Agency:

The Governor's Office of Storm Recovery ("GOSR") proposes to serve as lead agency under the National Environmental Policy Act ("NEPA") and State Environmental Quality Review Act ("SEQRA") and related laws for the environmental review of the proposed Washington Park Stormwater Mitigation Project (the "Proposed Action"). GOSR is conducting an environmental review of the Proposed Action on behalf of the State of New York as the recipient of Community Development Block Grant - Disaster Recovery ("CDBG-DR") funds from the U.S. Department of Housing and Urban Development under 42 U.S.C. § 5304(g).[1]

The Proposed Action involves the installation of culvert pipes, drainage ditches, swales, catch basins, a storm sewer manhole, and a pedestrian bridge in the Town of Rosendale, Ulster County, New York. The Proposed Action is located in the residential Washington Park area, northwest of the intersection of New York State (NYS) Route 32 and NYS Route 213.

This Proposed Action has been preliminarily classified as an UNLISTED action pursuant to SEQRA. Additional information regarding the Proposed Action and its location are provided in the enclosed Short Environmental Assessment Form. The review of the Proposed Action under NEPA and SEQRA would satisfy the requirements of 24 CFR Part 58 and 6 NYCRR Part 617.

Your agency or organization has been identified as a potential cooperating, involved, or interested agency for the review and approval of the Proposed Action. If your agency consents to GOSR's serving as the lead agency for review under NEPA and SEQRA, please so indicate by signing this letter and returning it at your earliest convenience to: Lori A. Shirley at 38-40 State Street, Hampton Plaza, Albany, NY 12207, or simply email a signed copy to Lori.Shirley@nyshcr.org. If we have not heard from you by April 21, 2017, your consent will be assumed.

[1] The Governor's Office of Storm Recovery, operating under the auspices of New York State Homes and Community Renewal's Housing Trust Fund Corporation, is the Responsible Entity for the administration of the CDBG-DR grants to the State of New York.

If you have any questions, please feel free to contact me at (518) 474-0755. Thank you for your consideration and cooperation.

Sincerely,

Lori A. Shirley
Director, Bureau of Environmental Review and Assessment
Governor's Office of Storm Recovery

The undersigned hereby consents to The Governor's Office of Storm Recovery serving as lead agency for the Washington Park Stormwater Mitigation Project, Town of Rosendale.

Agency/Organization:_____

By: _____

Name: _____

Title: _____

Date: _____

Permits/Approvals/Comments:_____
_____
_____
_____
_____
_____
_____

Enclosure: Short Environmental Assessment Form Part 1
List of Involved and Interested Agencies

NY State Environmental Quality Review (SEQR)- Distribution List for Washington Park Stormwater Improvements Project, Town of Rosendale, NY

Involved Agencies

Jeanne Walsh
Supervisor
Town of Rosendale
1915 Lucas Avenue
Cottekill, NY 12419

Martin Brand, Regional Director
NYSDEC Region 3
21 South Putt Corners Road
New Paltz, NY 12561-1696

Brian A. Orzel
USACE, NY District
Regulatory Branch
29 Federal Plaza
Room 1937
New York, NY 10278-0090

Interested Agencies

Bob Gallagher
Highway Superintendent
Town of Rosendale
1915 Lucas Avenue
Cottekill, NY 12419

Terry Johnson, Superintendent
Rosendale Water and Sewer Department
1915 Lucas Avenue
Cottekill, NY 12419

Nina Postupack
Ulster County Clerk
Ulster County Office Building
244 Fair Street
Kingston, NY 12401

Richard Lord
Chief of Mitigation Programs & Agency Preservation Officer
NYS Division of Homeland Security & Emergency Services
1220 Washington Avenue
Bldg 7A, Floor 4
Albany NY 12242

Robert Derico
Senior Environmental Manager
Dormitory Authority of the State of New York
515 Broadway

Affidavit of Mailing

STATE OF NEW YORK)
: SS. :
COUNTY OF ALBANY)

MARY BARTHELME, being duly sworn, deposes and says:

1. I am over the age of eighteen years.
2. On March 21, 2017, I mailed true and correct copies of the annexed Rosendale Washington Park Lead Agency Letter dated March 21, 2017 by placing the same in first class post-paid envelopes addressed: SEE ATTACHED LIST.
3. On said day, I deposited said envelopes in a mailbox at 99 Washington Avenue, Albany, New York 12210.

Mary Barthelme

Sworn to before me this
22 day of March, 2017

Notary Public

Stephanie Maier
Notary Public, State of New York
Qualified in Rensselaer County
No. 01MA6337406
Commission Expires February 22, 2020

Jeanne Walsh
Supervisor
Town of Rosendale
1915 Lucas Avenue
Cottekill, NY 12419

Bob Gallagher
Highway Superintendent
Town of Rosendale
1915 Lucas Avenue
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Richard Lord
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NYS Div. of Homeland Security & Emergency Services
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21 South Putt Corners Road
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Terry Johnson, Superintendent
Rosendale Water and Sewer Department
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Cottekill, NY 12419

Robert Derico
Senior Environmental Manager
Dormitory Authority of the State of New York
515 Broadway
Albany, NY 12207

Brian A. Orzel
USACE, NY District
Regulatory Branch
29 Federal Plaza
Room 1937
New York, NY 10278-0090

Nina Postupack
Ulster County Clerk
Ulster County Office Building
244 Fair Street
Kingston, NY 12401