

# ENGINEER'S REPORT

# **SEWER DISTRICT NO. 1** HULETTS LANDING FOSTER BROOK SEWER MAIN **RELOCATION PROJECT**

TOWN OF DRESDEN WASHINGTON COUNTY NEW YORK

Prepared for: Town of Dresden

256 Cross Road Clemons, York 12819

LaBella Project No.:

2230223

Date: February 2024



LaBella Associates, P.C. | 4 British American Blvd. | Latham, NY 12110

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# **1. EXECUTIVE SUMMARY**

The Hamlet of Huletts Landing is a lakeshore community located within the Town of Dresden municipal boundary in Washington County, New York. The Town of Dresden owns and operates a Publicly Operated Sewage System (POSS ID No. NYS 5-5324-00032/00001) within Huletts Landing referred to as Sewer District No. 1 (the system). The system includes gravity sewer mains, force mains, four duplex grinder pump stations, and three outfalls.

There are two existing aerial force main crossings of Foster Brook that have experienced ongoing maintenance issues. During high flow conditions in Foster Brook, the exposed pipes have caught debris and during cold temperatures, the pipes are subject to freezing. For either of these conditions, the force mains are at risk of breaking and thus spilling raw sewage almost directly into Lake George. To significantly reduce the risk of spillage at these crossings, a project to relocate the crossings under the stream is proposed.

This engineering report outlines findings related to the existing aerial crossings and provides recommendations for relocation of the force main crossings, along with an opinion of probable cost. The capital costs associated with the proposed approach is estimated to be approximately \$196,709.

# 2. PROJECT BACKGROUND & HISTORY

The Town of Dresden, N.Y. currently owns and operates Sewer District No. 1 located in the Hamlet of Huletts Landing. The sanitary sewer system servicing Sewer District No. 1 is comprised of pump stations, surge tanks, gravity sewer pipe, force mains, septic tanks, siphon chambers, seepage pits and leaching fields. The system was constructed in 1995 and services approximately 80 homes in the hamlet.

There are two existing aerial force main crossings of Foster Brook that have experienced ongoing maintenance issues. During high flow conditions in Foster Brook, the exposed pipes have caught debris and during cold temperatures, the pipes are subject to freezing. For either of these conditions, the force mains are at risk of breaking and thus spilling raw sewage almost directly into Lake George.

In 2020, the Lake George Association (LGA) in cooperation with the Town, funded the development of a preliminary design and cost estimates for relocation of the mains under the under the streambed. The LGA also requested that "rock vanes" be added in the stream to enhance fish habitat and provide added protection to the mains. The intent of the project was to significantly reduce the risk of spillage at these crossings. In January 2022, LaBella (formerly Chazen) presented to the Town and the LGA, preliminary plans (Appendix B) and an opinion of costs for the relocation of the force mains.



The next step is to secure funding and move forward with the proposed project through design, permitting, bidding, and construction.

# 2.1. Site Information

Dresden is a town located along the eastern shore of Lake George in Washington County, New York. The Hamlet of Huletts Landing is located in the Town of Dresden along the shore of Lake George, which is classified as an AA-S waterbody by the NYSDEC and serves as the potable water supply for several communities around the lake. Further, the NYSDEC has listed Lake George on its Waterbody Inventory/Priority Waterbodies List as Impaired (IR Category 5), PWL ID 1006-0016. Foster Brook, which passes under Eichler Drive and through the hamlet is tributary to Lake George. Although Foster Brook is not shown on the stream designation mapping, the wetland mapping shows Foster Brook connecting to an unnamed stream, which has an AA-S(TS) designation and enters Lake AA-S(TS) designation as well.

A review of the NYS Environmental Resource Mapper shows the corridor along Foster Brook as a Riverine Wetland. The Environmental Resource Mapper indicates the District is in the vicinity of plants listed as endangered, threatened, or rare by NYS, and also in the vicinity of animals listed as endangered or threatened.

Consultation with the NYSDEC will be required prior to the advancement of any construction activities associated with this project.

### 2.2. Ownership & Service Area

Sewer District No. 1 in the Hamlet of Hulett's Landing is owned and operated by the Town of Dresden. The Publicly Owned Sewer System Identification Number for Sewer District No. 1 is NYS 5-5324-00032/00001. The properties within the district are generally single-family vacation homes and there are no outside users, industrial discharges, or hauled waste associated with the sewer district.

### 2.3. Existing Facilities

The focus of this report is on the proposed project to relocate the two existing force main aerial crossings over Foster Brook, which are referred to as the Northwest Crossing and the Southeast Crossing.



For the Northwest Crossing, sewage from three buildings south of Foster Brook collects in pump station AGPS-01 located to the south of Foster Brook. Flows are conveyed via a 2" PVC force main aerially across Foster Brook, to a manhole in the gravity collection system on the north side of the Brook.

For the Southeast Crossing, sewage from the gravity collection system south of Foster Brook collects in pump station MPS 3-1 located to the south of Foster Brook. Flows are conveyed via a 3" PVC force main, aerially across Foster Brook, to a septic tank and leach field located to the north of the Brook.

Both crossings have concrete abutments on each side of the Brook and the insulated pipes rest on a steel beam/truss support system that extends from abutment to abutment. The force mains are buried up to each abutment and come above ground to pass over the abutments and steel support.

# 2.4. Need for Project

The existing force main aerial crossings are subject to failure due to debris buildup during high flow events in Foster Brook, as well as freezing during cold periods. In the event of a force main failure, the system presents a hazard to Lake George, as any sewage spillage or backup/overflow is likely to discharge directly into the lake. To substantially reduce the risk of sewage spillage resulting from a break or freezing in the mains at the aerial stream crossing, a project to relocate the force mains under the streambed is needed.

# 3. ALTERNATIVE ANALYSIS

### 3.1. Alternative 1: No Action

With no action, the existing force main aerial crossings will continue to operate as is and no efforts will be made to mitigate concerns associated with a failure of the force mains. In the event of a pipe break, the worst-case scenario (from an environmental perspective) involves the resulting untreated discharge of waste to the waters of Lake George. If a break were to occur unnoticed, the pump stations would continue to pump out through the break until noticed. Additionally, if the pipe were to freeze and not break, there is a risk of backup into the pump stations and potential sewage backup into residences, possible pump station overflow, and the expense of system maintenance.

### **3.2.** Alternative 2: Relocate Sewer Force Mains

Alternative 2 includes progressing the project to relocate the sewer force mains under the streambed. By rerouting the mains underground, the potential risk from damage from debris or freezing is minimized.



Construction work under this alternative would involve the following:

- Environmental protection measures.
- Cofferdams & bypass of stream flows.
- Clearing and grubbing along the pipe route.
- Excavation.
- Buried pipe installation.
- New valves each side of Brook.
- Buried tie-in to existing force mains each side of Brook.
- Testing of new pipes.
- Backfill.
- Construction of rock vanes.
- Demolition & removal of existing abutments & steel support structures.
- Site Restoration.

### **3.3. Opinion of Probable Costs**

Alternative 1: The capital costs for the No-action alternative are presumed to be zero, however future costs for repairs and cleanup in the event of a break, spillage, or backup could be very high, and costs to winterize the force mains will continue.

Alternative 2: The opinion of probable cost to relocate the aerial crossings under the streambed was estimated to be approximately \$196,709 including construction, engineering, legal, and contingency. This estimate is based on the level of information available at the time of this report. Also, prices are presented in 2024 dollars, however inflation, shipping costs, extreme material and labor cost fluctuations/increases, and pandemic recovery have led to highly variable bidding conditions/pricing, as such this estimate should be revisited as the project progresses. The Engineer's Opinion of Probable Cost is included in Appendix A.



# 4. **PREFERRED ALTERNATIVE**

# 4.1. Basis of Selection

Providing no upgrades (Alternative 1) to the existing system comes at no initial capital cost, however there is the continuing potential risk of future contamination, cleanup and repair costs, and it does not provide any benefit to removing potential sources of contamination for Lake George.

Alternative 2 minimizes the risk of contamination to Lake George resulting from a break at the crossing locations. Based on the potential consequences of a break, relocation of the force mains is the preferred alternative.

# APPENDIX A Engineer's Opinion of Probable Cost



LaBella Associates, PC 4 British American Blvd. Latham, NY 12110

### Foster Brook Sewer Relocation Project; Town of Dresden, Washington County, New York

Engineer's Opinion of Probable Cost for Foster Brook Sewer Relocation

Date Last Revised 02.02.2024

Sanitary Sewer Utilities						
Item No.	Description	Quanity	Units	Material	Labor and Equipment	Cost
1	Mobilization and General Conditions (6%)	1	LS	\$0	\$5,608	\$5,608
2	Sediment and Erosion Control	1	LS	\$4,212	\$7,235	\$11,447
3	Site Clearing (NYS DOT PIC # 201.07)	1	LS	\$0	\$4,095	\$4,095
4	Cofferdam and Bypass Pumping (NYSDOT Type II) $^1$	2	EA	\$4,212	\$8,190	\$24,804
5	Rock Cross Vanes	40	CY	\$65	\$390	\$18,200
6	3" SDR17 PVC Forcemain, incl. excavation and backfill <sup>2</sup>	40	LF	\$8	\$205	\$8,502
7	2" SDR17 PVC Forcemain, incl. excavation and backfill <sup>2</sup>	40	LF	\$6	\$205	\$8,440
8	3" MJ Gate Valve	2	EA	\$936	\$1,638	\$5,148
9	2" MJ Gate Valve	2	EA	\$780	\$1,365	\$4,290
10	Testing of Sanitary Sewer Mains	1	LS	\$0	\$2,048	\$2,048
11	Demolition of Existing Sanitary Infrastructure	1	LS	\$0	\$6,500	\$6,500
12	Site Restoration	1	LS	\$3,120	\$8,190	\$11,310
			S	SEWER UTILITY CON	STRUCTION SUBTOTAL	\$110,391
	20% Construction Contingency Engineering Design, Bid, Construction Services Legal Services					\$22,078
						\$54,240
						\$10,000
				SANITARY SEW	ER UTILITY TOTAL COST	\$196,709

### Footnotes:

1. Cofferdam per NYS DOT 553 Type II. Cofferdam will be designed by a NYS Licensed PE engaged by the contractor (this is the requirement for a type II cofferdam per NYSDOT Specifications), as such the total anticipated costs is highly variable for this line item.

2. Labor and equipment includes excavation, backfill and compaction

3. This estimate was developed based on 60% Plans entitled "Stream Crossing Plan and Profile" and dated 2/4/2021. Prices will vary as design progresses.

4. Prices presented in 2024 dollars. Please note that the Pandemic recovery, inflation, material increases, and market conditions have led to highly variable bidding conditions/pricing as such this estimate should be revisited regularly as the project progresses.

5. Costs of the acquisition of easements is not included in this estimate.

# APPENDIX B Preliminary Drawings

# FOSTER BROOK SEWER **RELOCATION PROJECT** TOWN OF DRESDEN, WASHINGTON COUNTY, NY

**RECORD OWNER OF SEWER:** 

TOWN OF DRESDEN 1 LILLIANS WAY, CLEMONS, NY 12819 **RECORD CIVIL ENGINEER:** 

CHAZEN ENGINEERING, LAND SURVEYING & LANDSCAPE ARCHITECTURE CO., D.P.C. 20 ELM STREET (SUITE 110) GLENS FALLS, NEW YORK 12801 PHONE: (518) 812-0513

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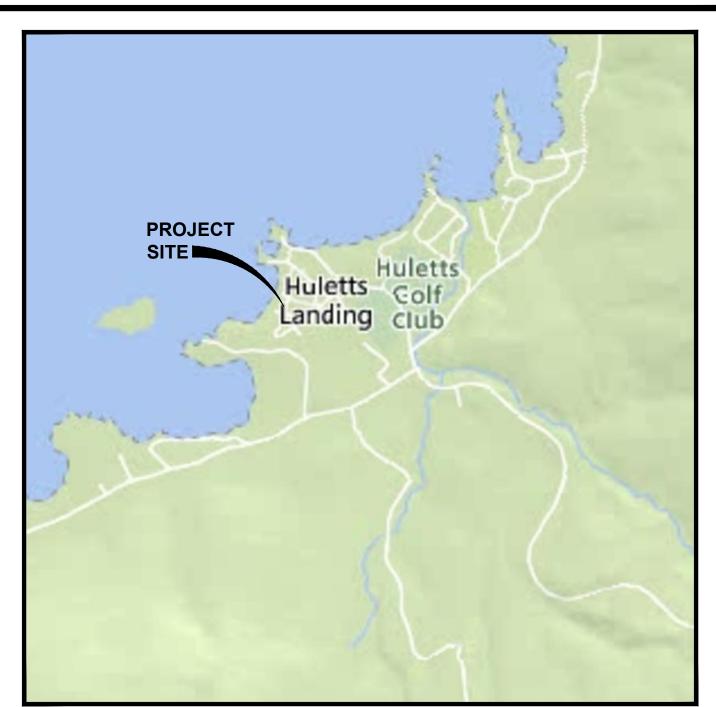
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Drawing Name: Z: \Projects\92000-92099\92024.00 - LGA - Foster Brook Sewer Relocation\DWG\00\_G001\_92024-00\_TITLE.dwg Xref's Attached: XTB\_92024-00\_H24x36 Date Printed: Jan 19, 2022, 3:15pm

ORIGINAL SCALE IN INCHES

INDEX OF DRAWINGS							
AGE NO. REV SHEET NO. DATE DESCRIPTION							
1	0	G001	2/4/21	TITLE SHEET			
2	0	G002	2/4/21	NOTES & LEGENDS			
3	0	SP1	1/6/21	FOSTER BROOK EXISTING CONDITIONS			
4	0	SP2	1/6/21	FOSTER BROOK EXISTING CONDITIONS			
5	0	C130	2/4/21	STREAM CROSSING PLAN & PROFILE			
6	0	C570	2/4/21	SITE AND SEWER SYSTEM DETAILS			

	ERING, LAND SURVEY E ARCHITECTURE & G			
THE Characteric COMPANIES Proud to be Employee Owned www.chazencompanies.com (888) 539-9073	<u>North Country Office</u> 20 Elm Street, Suite 110 Glens Falls, New York 12801	<ul> <li>Office Locations</li> <li>Glens Falls, NY</li> <li>Troy, NY</li> <li>Poughkeepsie, NY</li> <li>White Plains, NY</li> <li>New York City, NY</li> </ul>	rev. date	descrip



LOCATION MAP SCALE: 1:1000



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FOSTER BROOK SEWER RELOCATION PROJECT esigned checked TCC ZFB scale NTS • date 01/19/22 TITLE SHEET oject no. 92024.00 eet no. G001 TOWN OF DRESDEN, WASHINGTON COUNTY, NEW YORK

# DEMOLITION NOTES: OF DEBRIS AUTHORITIES HAVING JURISDICTION. SHORING CAPPED. JURISDICTION.

- AND CONTOURS.
- AROUND SELECTIVE DEMOLITION AREA.
- BEFORE START OF SELECTIVE DEMOLITION.
- DEMOLISHED MATERIALS ON-SITE.

# SITE PLAN NOTES:

- **GENERAL CONSTRUCTION NOTES:**

- ADJOINING PROPERTIES.
- 6. NO WORK, STORAGE OR TRESPASS SHALL BE PERMITTED BEYOND THE SITE PROPERTY LINES OR PUBLIC RIGHT-OF-WAY. 7. ALL EXISTING LAWN AREA, CURBING, PAVING, SIDEWALKS, CULVERTS OR OTHER PUBLIC OR PRIVATE PROPERTY DAMAGED BY TRENCHING OR EXCAVATION OPERATIONS SHALL BE REPLACED OR REPAIRED TO A CONDITION EQUAL TO EXISTING, AS DESCRIBED IN CONTRACT DOCUMENTS OR AS ORDERED BY ENGINEER (AOBE). MAILBOXES, SIGN POSTS, ETC SHALL BE PROTECTED OR REMOVED AND REPLACED EXACTLY AS THEY WERE BEFORE BEING DISTURBED. REMOVE AND REPLACE AFFECTED CURBING AND SIDEWALK TO NEAREST JOINT. REMOVE PAVEMENT AND REPLACE TO SAW CUT LINE, SAW CUT IN STRAIGHT LINE TO POINT NEEDED TO BLEND GRADE, REMOVE LAWN AND REPLACE TO MINIMUM LIMIT OF EXCAVATION. 8. IF PREVIOUSLY UNKNOWN CULTURAL, ARCHEOLOGICAL, OR HISTORIC REMAINS OR ARTIFACTS ARE DISCOVERED IN THE COURSE OF CONSTRUCTION OF THIS PROJECT. THE PROJECT SPONSORS SHALL SUSPEND CONSTRUCTION OPERATIONS IN THE PERTINENT AREA AND SHALL NOTIFY THE PROJECT ENGINEER. CONSTRUCTION IN THAT AREA SHALL RESUME ONLY AFTER COMPLETION OF FEDERAL. TRIBAL, AND STATE COORDINATION TO DETERMINE
- WHETHER PROTECTION OR RECOVERY OF THE REMAINS IS WARRANTED, OR WHETHER THE SITE IS ELIGIBLE FOR LISTING IN THE NATIONAL REGISTER OF HISTORIC PLACES.

# LAYOUT NOTES:

ACCEPTED.

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ORIGINAL SCALE IN INCHES

Drawing Name: Z: \Projects\92000-92099\92024.00 - LGA - Foster Brook Sewer Relocation\DWG\00\_G002\_92024-00\_LEGNOTE.dwg Xref's Attached: XTB\_92024-00\_H24x36 Date Printed: Jan 19, 2022, 3:12pm

REFER TO REQUIREMENTS OUTLINED IN THE EROSION & SEDIMENTS CONTROL PLANS & NOTES PRIOR TO COMMENCEMENT OF WORK. 2. CONFORM TO APPLICABLE CODE FOR DEMOLITION OF STRUCTURES, SAFETY OF ADJACENT STRUCTURES, DUST CONTROL, RUNOFF CONTROL, AND HAULING, DISPOSAL AND STORAGE

- 3. PROVIDE, ERECT, AND MAINTAIN TEMPORARY BARRIERS AND SECURITY DEVICES. 4. MAINTAIN EXISTING UTILITIES TO REMAIN IN SERVICE AND PROTECT THEM AGAINST DAMAGE DURING SELECTIVE DEMOLITION OPERATIONS. DO NOT INTERRUPT EXISTING UTILITIES SERVING OPERATING FACILITIES, EXCEPT WHEN AUTHORIZED IN WRITING BY OWNER AND 5. NOTIFY ADJACENT OWNERS OF WORK THAT MAY AFFECT THEIR PROPERTY, POTENTIAL NOISE, UTILITY OUTAGE, OR DISRUPTION. COORDINATE WITH OWNER. 6. PREVENT MOVEMENT OR SETTLEMENT OF ADJACENT STRUCTURES. PROVIDE BRACING AND
- 7. LOCATE AND IDENTIFY ALL EXISTING UTILITIES WITHIN THE CONSTRUCTION AREA. DISCONNECT AND SEAL OR CAP OFF UTILITY SERVICES THAT WILL BE AFFECTED BY THIS PROJECT. NOTIFY AFFECTED UTILITY COMPANIES BEFORE STARTING WORK AND COMPLY
- WITH THEIR REQUIREMENTS. VERIFY THAT UTILITIES HAVE BEEN DISCONNECTED AND 8. DEMOLISH AND REMOVE COMPONENTS IN AN ORDERLY AND CAREFUL MANNER. 9. PROTECT EXISTING FEATURES THAT ARE NOT TO BE DEMOLISHED. 10. CONDUCT OPERATIONS WITH MINIMUM INTERFERENCE TO PUBLIC OR PRIVATE ACCESSES. 11. MAINTAIN EGRESS AND ACCESS AT ALL TIMES. DO NOT CLOSE OR OBSTRUCT ROADWAYS, OR SIDEWALKS WITHOUT PERMITS. COORDINATE W/ AUTHORITY HAVING
- 12. CEASE OPERATIONS IMMEDIATELY IF ADJACENT STRUCTURES APPEAR TO BE IN DANGER. NOTIFY AUTHORITY HAVING JURISDICTION. 13. ROUGH GRADE AND COMPACT AREAS AFFECTED BY DEMOLITION TO MAINTAIN SITE GRADES
- 14. FIELD VERIFY EXISTING CONDITIONS AND CORRELATE WITH REQUIREMENTS INDICATED ON DEMOLITION PLAN TO DETERMINE EXTENT OF SELECTIVE DEMOLITION REQUIRED. 15. CONDUCT DEMOLITION OPERATIONS AND REMOVE DEBRIS TO ENSURE MINIMUM INTERFERENCE WITH SELECTIVE DEMOLITION OPERATIONS. 16. CONDUCT DEMOLITION OPERATIONS TO PREVENT INJURY TO PEOPLE AND DAMAGE TO
- ADJACENT BUILDINGS AND FACILITIES TO REMAIN. ENSURE SAFE PASSAGE OF PEOPLE 17. USE WATER MIST, TEMPORARY ENCLOSURES AND OTHER SUITABLE METHODS TO LIMIT THE SPREAD OF DUST AND DIRT. COMPLY WITH GOVERNING ENVIRONMENTAL PROTECTION REGULATIONS. DO NOT USE WATER WHEN IT MAY DAMAGE EXISTING CONSTRUCTION, SUCH
- AS CAUSING ICING, FLOODING, AND TRANSPORTING POLLUTANTS. 18. REMOVE AND TRANSPORT DEBRIS IN A MANNER THAT WILL PREVENT SPILLAGE ON ADJACENT SURFACES AND AREAS. 19. CLEAN ADJACENT STRUCTURES AND IMPROVEMENTS OF DUST, DIRT AND DEBRIS CAUSED BY SELECTIVE DEMOLITION OPERATIONS. RETURN ADJACENT AREAS TO CONDITION EXISTING
- 20. PROMPTLY DISPOSE OF DEMOLISHED MATERIALS. ALL DEBRIS RESULTING FROM DEMOLITION ACTIVITIES SHALL BE DISPOSED OF OFF-SITE AT A FACILITY APPROVED TO RECEIVE THE DEBRIS. DO NOT ALLOW DEMOLISHED MATERIALS TO ACCUMULATE ON-SITE. DO NOT BURN

- THE CONTRACTOR SHALL PROTECT EXISTING PROPERTY LINE MONUMENTATION. ANY MONUMENTATION DISTURBED OR DESTROYED, AS JUDGED BY THE ENGINEER OR OWNER, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE AND UNDER THE SUPERVISION OF A NEW YORK STATE LICENSED LAND SURVEYOR.
- . NOTIFY ENGINEER 48 HOURS PRIOR TO INITIALIZATION OF ANY WORK ON SITE. 3. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY CONDITIONS THAT VARY FROM THOSE SHOWN ON THE PLANS. THE CONTRACTOR'S WORK SHALL NOT VARY FROM THE PLANS WITHOUT PRIOR REVIEW FROM THE ENGINEER.
- 4. CONTRACTOR IS RESPONSIBLE FOR EMPLOYING AND MAINTAINING ALL TRAFFIC CONTROL AND SAFETY MEASURES DURING CONSTRUCTION. 5. CONTRACTOR IS RESPONSIBLE FOR PROPERLY & SAFELY MAINTAINING AREA BETWEEN ALL

. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL FIELD LAYOUT. THE CONTRACTOR SHALL TAKE TIES TO ALL UTILITY CONNECTIONS AND PROVIDE MARKED-UP AS BUILT PLANS FOR ALL UTILITIES SHOWING TIES TO CONNECTIONS, BENDS, VALVES, LENGTHS OF LINES AND INVERTS. AS-BUILT PLANS SHALL BE REVIEWED BY THE OWNER AND THE ENGINEER AND THE CONTRACTOR SHALL PROVIDE ANY CORRECTION OR ADDITIONS TO THE SATISFACTION OF THE OWNER AND THE ENGINEER BEFORE UTILITIES WILL BE

GRADING NOTES:

- . PRIOR TO SITE DISTURBANCE, CONTRACTOR TO INSTALL EROSION & SEDIMENT CONTROL MEASURES.
- 2. IF ROCK IS ENCOUNTERED DURING CONSTRUCTION & REMOVAL BY BLASTING IS REQUIRED, THE CONTRACTOR SHALL OBTAIN ALL NECESSARY APPROVALS AND PERMITS REQUIRED BY THE AUTHORITY HAVING JURISDICTION.
- 3. ALL BLASTING OPERATIONS WILL ADHERE TO NEW YORK STATE AND LOCAL AUTHORITY ORDINANCES GOVERNING THE USE OF EXPLOSIVES. THE STATE REGULATIONS ARE CONTAINED IN 12 NYCRR 39 AND INDUSTRIAL CODE RULE 753.
- 4. STRIP ALL TOPSOIL PRIOR TO COMMENCING EARTHWORK OPERATIONS. TOPSOIL MAY BE STORED AND REUSED IN LAWN AND PLANTING AREAS ONLY. TOPSOIL AND SEED ALL AREAS DISTURBED BY CONSTRUCTION THAT ARE TO REMAIN GREEN.
- 5. BOX ALL TREES AND HOUSE ALL SHRUBS AND HEDGES BEFORE PLACING EARTH AGAINST OR NEAR THEM. ORNAMENTAL TREES, SHRUBS AND HEDGES WHICH MUST BE REMOVED DURING CONSTRUCTION SHALL BE HEALED IN AND RE-PLANTED IN AS GOOD A CONDITION AS THEY WERE BEFORE THEIR REMOVAL. ANY DAMAGED TREES, SHRUBS, AND/OR HEDGES
- SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. 6. ALL EARTHWORK SHALL BE SMOOTHLY AND EVENLY BLENDED INTO EXISTING CONDITIONS. NO WORK, STORAGE OR TRESPASS SHALL BE PERMITTED BEYOND THE BOUNDARIES OF ANY FASEMENT OR PROPERTY LINE 7. REMOVE ALL VEGETATION, TREES, STUMPS, GRASSES, ORGANIC SOILS, DEBRIS AND
- DELETERIOUS MATERIALS WITHIN THE AREAS SLATED FOR CONSTRUCTION. 8. IF PREVIOUSLY UNKNOWN CULTURAL, ARCHEOLOGICAL, OR HISTORIC REMAINS OR ARTIFACTS ARE DISCOVERED IN THE COURSE OF CONSTRUCTION OF THIS PROJECT, THE PROJECT SPONSORS SHALL SUSPEND CONSTRUCTION OPERATIONS IN THE PERTINENT AREA AND SHALL NOTIFY THE PROJECT ENGINEER. CONSTRUCTION IN THAT AREA SHALL RESUME ONLY AFTER COMPLETION OF FEDERAL, TRIBAL, AND STATE COORDINATION TO DETERMINE WHETHER PROTECTION OR RECOVERY OF THE REMAINS IS WARRANTED, OR WHETHER THE SITE IS ELIGIBLE FOR LISTING IN THE NATIONAL REGISTER OF HISTORIC PLACES.

# **UTILITY PLAN NOTES:**

# **GENERAL CONSTRUCTION NOTES:**

- ALL UNDERGROUND UTILITIES ARE SHOWN IN THEIR RELATIVE POSITION AND ARE FOR INFORMATIONAL PURPOSES ONLY. CONTRACTOR TO VERIFY THEIR ACTUAL LOCATION IN THE FIELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. 2. ANY CONDITION ENCOUNTERED IN THE FIELD DIFFERING FROM THOSE SHOWN HEREON
- SHALL BE REPORTED TO THE DESIGN ENGINEER BEFORE CONSTRUCTION IS TO PROCEED. 3. SEWER MAINS IN RELATION TO WATER MAINS: WHERE POSSIBLE, SEWERS SHALL BE LAID AT LEAST 10 (TEN) FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN. VERTICAL SEPARATION SHALL BE MAINTAINED TO PROVIDE 18 (FIGHTEEN) INCHES BETWEEN TOP OF SEWER AND BOTTOM OF THE WATER MAIN AT UTILITY CROSSINGS. WHEN NOT POSSIBLE TO OBTAIN THE PROPER VERTICAL SEPARATION, SEWER PIPE SHALL BE PRESSURE RATED AND TESTED @ 150psi, 10 (TEN) FEET ON EACH SIDE OF THE WATER MAIN BEING CROSSED
- 4. ALL PROPOSED UTILITIES SHALL TERMINATE 5 FEET FROM ANY PROPOSED BUILDING FACE. CONTRACTOR TO COORDINATE WITH BUILDING PLANS FOR ANY CONNECTIONS.
- . ALL STORM SEWER SHALL BE SMOOTH INTERIOR HDPE UNLESS OTHERWISE SPECIFIED. 6. ALL GRAVITY SANITARY SEWER SHALL BE SDR 35 PVC UNLESS OTHERWISE SPECIFIED.
- . ALL WATER PIPE SHALL BE CL52 DUCTILE IRON PIPE UNLESS OTHERWISE SPECIFIED. 8. CONTRACTOR TO VERIFY STATUS OF ALL UTILITY SERVICES PRIOR TO INTERRUPTION.
- 9. EXPLORATORY EXCAVATIONS SHALL BE PERFORMED BY THE CONTRACTOR AT ALL UTILITY CONNECTION LOCATIONS AND AS NEEDED TO VERIFY EXISTING CONDITIONS PRIOR TO
- PERFORMING WORK. 10. BEFORE CONSTRUCTING LINES TO CONNECT TO EXISTING UTILITIES, VERIFY EXISTING UTILITY
- INVERTS AND NOTIFY THE ENGINEER IF ANY VARIATION FROM THE PLAN IS REQUIRED. 11. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES IN SERVICE FOR THE DURATION
- OF THE WORK. 12. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIRED PERMITS AND ASSOCIATED
- CONDITIONS 13. CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING UTILITY TRENCHES AND EXCAVATIONS AND FOR THE MAINTENANCE OF SURFACE DRAINAGE DURING THE COURSE OF
- THE WORK 14. IF ROCK REMOVAL BY BLASTING IS REQUIRED, THE CONTRACTOR SHALL OBTAIN ALL NECESSARY APPROVALS AND PERMITS REQUIRED BY THE AUTHORITY HAVING JURISDICTION.

# **ROCK BLASTING NOTES:**

BLASTING OF BEDROCK IS NOT ANTICIPATED AT THIS SITE IN ORDER TO COMPLETE THE PROPOSED DEVELOPMENT. HOWEVER, THESE NOTES ARE INCLUDED SHOULD UNFORESEEN

- CONDITIONS REQUIRE THE NEED FOR BLASTING TO EXCAVATE BEDROCK. 1. ALL RECOMMENDED SAFETY REQUIREMENTS AND STANDARDS REFERENCED AND ANY LOCAL RESTRICTIONS SHALL BE APPLIED AS REQUIRED FOR SAFETY, SECURITY, AND SPECIFICALLY RELATED DETAILS FOR BLASTING PROCEDURES. AT ALL TIMES, FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES WILL BE FOLLOWED CONCERNING THE TRANSPORTATION AND STORAGE
- OF EXPLOSIVES. 2. A MINIMUM OF FOUR (4) WEEKS PRIOR TO COMMENCEMENT OF THE INITIAL BLASTING OPERATIONS, THE CONTRACTOR SHALL NOTIFY THE FOLLOWING AGENCIES AS APPROPRIATE: POLICE AGENCIES, GAS AND ELECTRIC SERVICE COMPANIES, TELEPHONE AND CABLE OPERATING COMPANIES, TOWN WATER AND SEWER DEPARTMENTS, NYSDOT, AND LOCAL
- FIRE, RESCUE, AND AMBULANCE SERVICES. 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE RESULTING FROM THE USE OF EXPLOSIVES. EXPLOSIVES SHALL BE STORED IN A SECURE MANNER IN COMPLIANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES.
- 4. THE CONTRACTOR SHALL NOTIFY EACH PROPERTY AND UTILITY OWNER HAVING A BUILDING. STRUCTURE OR OTHER INSTALLATION ABOVE OR BELOW GROUND IN PROXIMITY TO OF THE WORK OF HIS INTENTION TO USE EXPLOSIVES. NOTICE SHALL BE GIVEN SUFFICIENTLY IN ADVANCE TO ENABLE THE OWNERS TO TAKE STEPS TO PROTECT THEIR PROPERTY. NOTICE SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR DAMAGE RESULTING FROM HIS BLASTING OPERATIONS.
- 5. THE CONTRACTOR SHALL SCHEDULE AND CONDUCT PRE-BLAST SURVEYS WITH PROPERTY OWNERS LOCATED IN THE AREA POTENTIALLY AFFECTED BY AIRBLAST OVERPRESSURE AND GROUND VIBRATION OR AS REQUIRED. 6. THE CONTRACTOR SHALL IMPLEMENT ENGINEERING MEASURES IN ORDER TO MINIMIZE THE
- POTENTIAL IMPACTS OF DUST, NOISE AND GROUND VIBRATION. BLAST VIBRATION CONTROL WILL BE ACHIEVED BY LIMITING THE CHARGE PER DELAY SO THAT THE PEAK PARTICLE VELOCITY REMAINS BELOW THE SPECIFIED LEVELS.
- 7. A APPROPRIATELY QUALIFIED, LICENSED BLASTING SPECIALIST, WITH EXPERIENCE SHALL BE ONSITE AND SUPERVISE BLASTING OPERATIONS. AT ALL TIMES, THE BLASTING AREA SHALL BE RESTRICTED TO BLASTING OPERATIONS AND AUTHORIZED PERSONNEL ONLY. 8. PROTECTIVE MEASURES INCLUDING INSTALLATION OF SIGNAGE. NOTIFICATION OF NEARBY
- RESIDENTS, TRAFFIC CONTROL AS NECESSARY ALONG NEARBY ROADS, AUDIBLE PRE-BLAST WARNINGS, AND USE OF BLAST MATS SHALL BE IMPLEMENTED. 9. DELIVERY AND TRANSPORT OF EXPLOSIVES FROM THE POWDER MAGAZINES TO THE BLAST AREA WILL BE BY VEHICLES SPECIFICALLY DESIGNED FOR THIS USE BY THE CRITERIA
- OUTLINED IN THE SAFETY REQUIREMENTS. ONLY AUTHORIZED PERSONS WILL TRANSPORT AND HANDLE THE EXPLOSIVES AS DESIGNATED BY THE ISSUING AUTHORITY OF THOSE LICENSES FOR THIS PURPOSE. 10.MONITORING OF PEAK PARTICLE VELOCITY (INCHES/SECOND) AND PEAK AIRBLAST
- OVERPRESSURE (PSI) SHALL BE PERFORMED DURING ALL BLASTS.

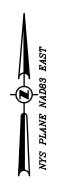
	RING, LAND SURVEY ARCHITECTURE & GI			
THE Charge COMPANIES Proud to be Employee Owned www.chazencompanies.com (888) 539-9073	<u>North Country Office</u> 20 Elm Street, Suite 110 Glens Falls, New York 12801	<ul> <li>Office Locations</li> <li>Glens Falls, NY</li> <li>Troy, NY</li> <li>Poughkeepsie, NY</li> <li>White Plains, NY</li> <li>New York City, NY</li> </ul>	rev. dat	e desc

FOSTER BROOK SEWER RELOCATION PROJECT

# **NOTES & LEGENDS**

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01/19/22	NTS
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TOWN OF DRESDEN, WASHINGTON COUNTY, NEW YORK



# LEGEND: **EXISTING CONDITIONS:**

110
× 200.3
GRA VEL
OHW
ИК
8"SAN

15"RCP —

{+}

<sup>IPF</sup> ⊙

IRF ⊙

CIRF ⊙

⊙*UGC* 

× BW:200.3

X TW: 200.3

X FF: 200.3

X R: 216.3

× 1:200.3

### SYMBOLS:

EXISTING STONE WALL EXISTING TREE LINE EXISTING OVERHEAD WIRES EXISTING UNKNOWN UNDERGROUND LINE EXISTING UNDERGROUND SEWER LINE EXISTING UNDERGROUND STORM LINE EXISTING POST EXISTING CONIFEROUS TREE EXISTING DECIDUOUS TREE EXISTING TREE STUMP EXISTING IRON PIPE FOUND EXISTING IRON ROD FOUND EXISTING CAPPED IRON ROD

EXISTING BENCHMARK EXISTING SANITARY MANHOLE EXISTING CLEANOUT EXISTING DRAINAGE MANHOLE EXISTING CATCH BASIN EXISTING CATCH BASIN ROUND EXISTING ELECTRIC METER EXISTING ELECTRIC BOX EXISTING ELECTRIC TRANSFORMER EXISTING GUY WIRE EXISTING UTILITY POLE EXISTING AIR CONDITION COMPRESSOR EXISTING PANEL/SWITCH BOX EXISTING CONDUIT TO/FROM UNDERGROUND EXISTING UNKNOWN MANHOLE

APPROXIMATE PROPERTY LINES PER TAX MAP

EXISTING MAJOR CONTOUR

EXISTING MINOR CONTOUR

EXISTING GRAVEL DRIVEWAY

EXISTING SPOT GRADE

EXISTING BUILDING

EXISTING SPOT BOTTOM WALL EXISTING SPOT TOP WALL EXISTING FINISHED FLOOR ELEVATION EXISTING RIM ELEVATION EXISTING INVERT ELEVATION

# **FLOOD ZONE CLASSIFICATION:**

LANDS ARE SHOWN TO LIE WITHIN "SPECIAL FLOOD HAZARD AREA INUNDATED BY 100-YEAR FLOOD", ZONE A (NO BASE FLOOD ELEVATIONS DETERMINED) AND ZONE AE (BASE FLOOD ELEVATIONS DETERMINED - ELEVATION=321.00 NGVD 1929), "OTHER FLOOD AREAS", ZONE X (AREAS OF 500-YEAR FLOOD; AREAS OF 100-YEAR FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 100-YEAR FLOOD), AS SHOWN ON FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), NATIONAL FLOOD INSURANCE PROGRAM (NFIP) FLOOD INSURANCE RATE MAP (FIRM) FOR THE TOWN OF DRESDEN, WASHINGTON COUNTY, NEW YORK IDENTIFIED AS COMMUNITY MAP NUMBER 3614100005B BEARING A REVISION DATE OF SEPTEMBER 20, 1996.

THIS INTERPRETATION OF THE BASE FLOOD ELEVATION SHOULD NOT BE RELIED UPON FOR DESIGN PURPOSES WITHOUT OBTAINING CONFIRMATION FROM THE LOCAL FLOOD ADMINISTRATOR AND/OR FEMA AS TO AGREEMENT OF THIS INTERPRETATION OF THE SPECIAL FLOOD HAZARD AREA. CONVERSION:

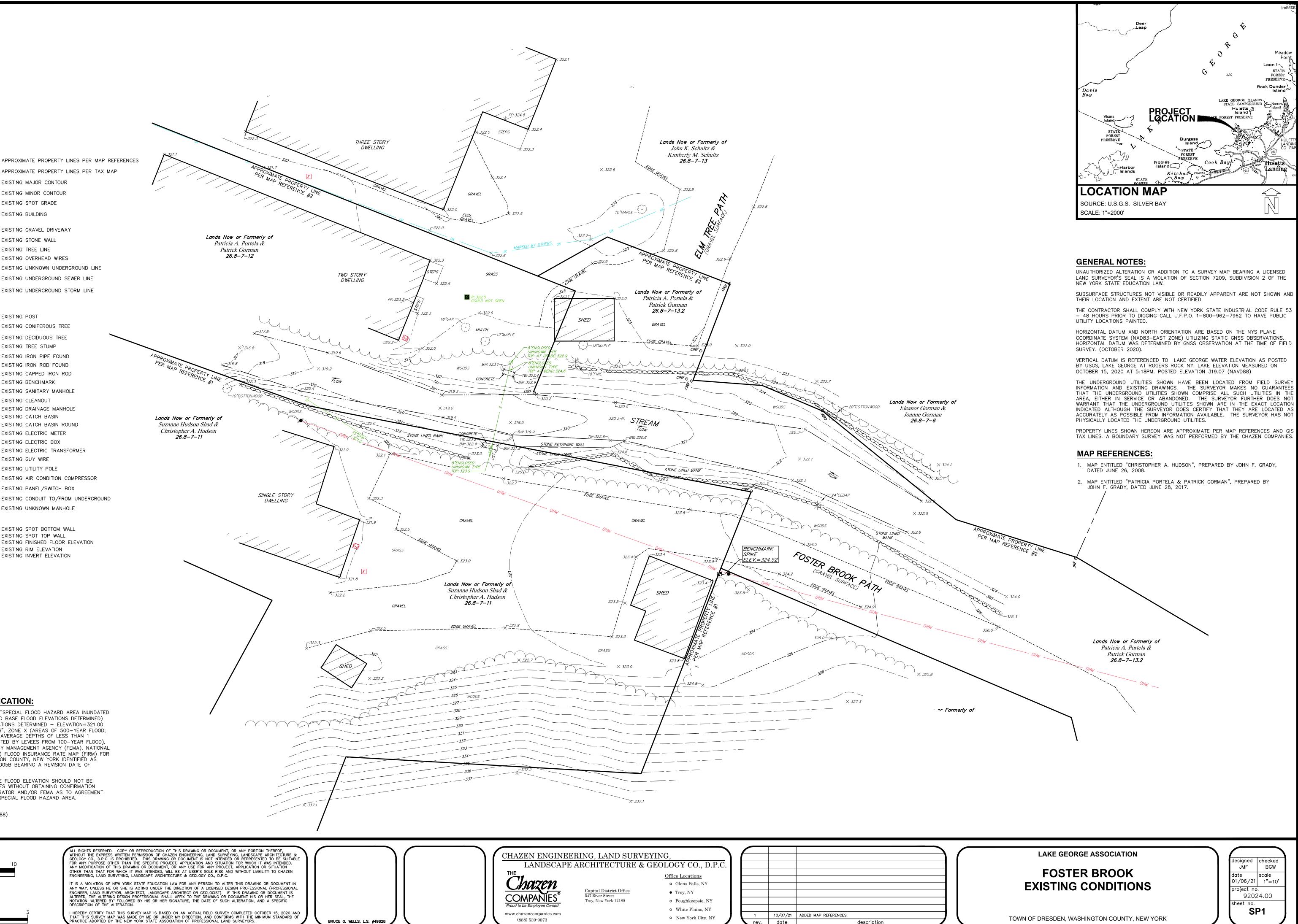
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	SCALE IN FEET 1"=10'	
	2	3

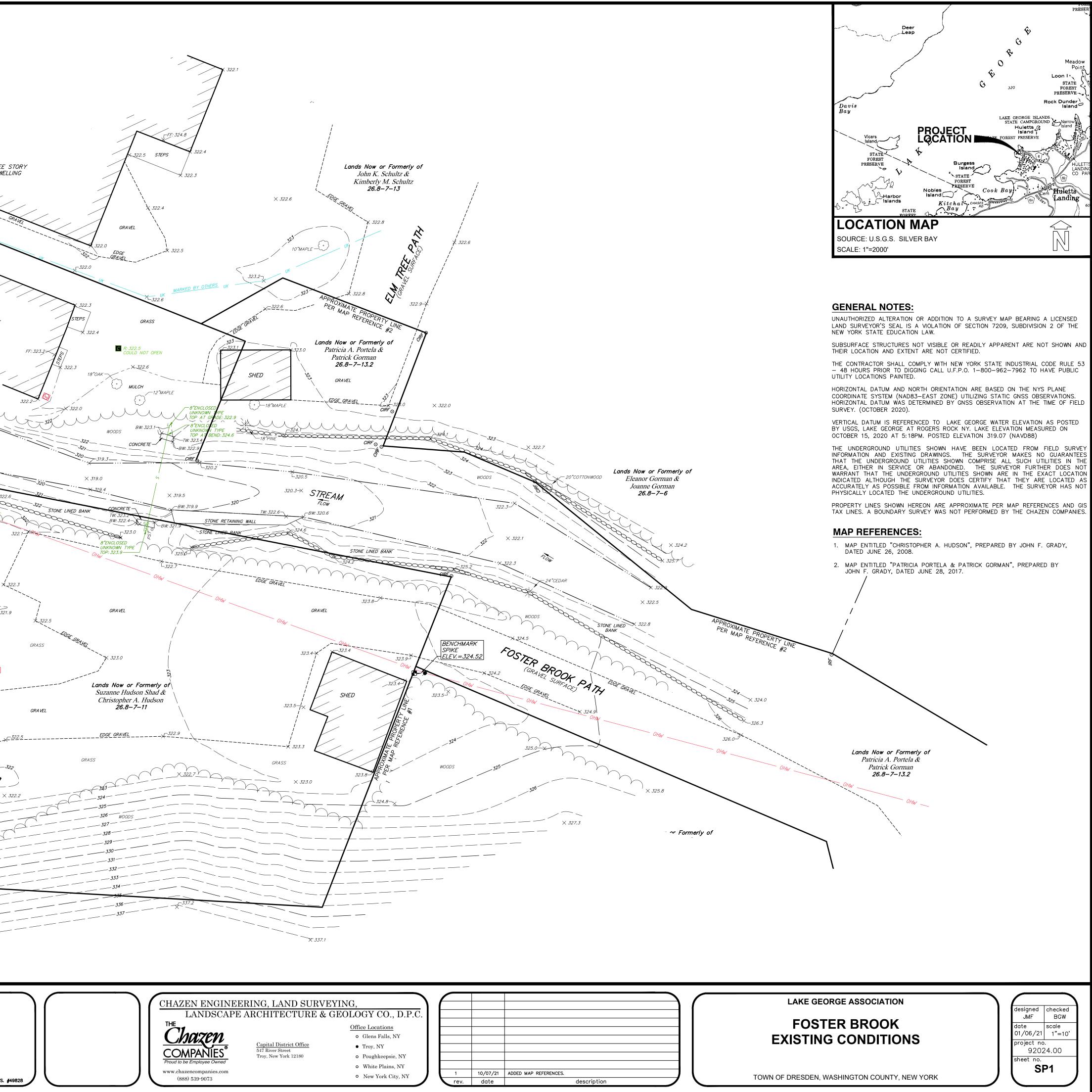
ORIGINAL SCALE IN INCHES

OTHER THAN THAT FOR WHICH IT WAS INTENDED, WILL BE AT USER'S SOLE RISK AND WITHOUT LIABILITY TO CHAZEN ENGINEERING, LAND SURVEYING, LANDSCAPE ARCHITECTURE & GEOLOGY CO., D.P.C. IT IS A VIOLATION OF NEW YORK STATE EDUCATION LAW FOR ANY PERSON TO ALTER THIS DRAWING OR DOCUMENT IN ANY WAY, UNLESS HE OR SHE IS ACTING UNDER THE DIRECTION CAW FOR ANT PERSON TO ALTER THIS DRAWING OR DOCUMENT IN ANY WAY, UNLESS HE OR SHE IS ACTING UNDER THE DIRECTION OF A LICENSED DESIGN PROFESSIONAL (PROFESSIONAL ENGINEER, LAND SURVEYOR, ARCHITECT, LANDSCAPE ARCHITECT OR GEOLOGIST). IF THIS DRAWING OR DOCUMENT IS ALTERED, THE ALTERING DESIGN PROFESSIONAL SHALL AFFIX TO THE DRAWING OR DOCUMENT HIS OR HER SEAL, THE NOTATION "ALTERED BY" FOLLOWED BY HIS OR HER SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

Lands Now or Formerly of Patricia A. Portela & Patrick Gorman 26.8–7–12



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# LEGEND: **EXISTING CONDITIONS:**

110
× 200.3
GRA VEL
OHW

\_\_\_\_\_\_ 8"SAN —

15"RCP —

APPROXIMATE PROPERTY LINES PER TAX MAP EXISTING MAJOR CONTOUR EXISTING MINOR CONTOUR EXISTING SPOT GRADE EXISTING BUILDING EXISTING GRAVEL DRIVEWAY EXISTING STONE WALL EXISTING TREE LINE EXISTING OVERHEAD WIRES EXISTING UNKNOWN UNDERGROUND LINE EXISTING UNDERGROUND SEWER LINE

APPROXIMATE PROPERTY LINES PER MAP REFERENCES

EXISTING UNDERGROUND STORM LINE

### SYMBOLS:

PST {+} - Ø <sup>IPF</sup> ⊙ IRF ⊙ CIRF <sub>O</sub>

# EXISTING POST

EXISTING CONIFEROUS TREE EXISTING DECIDUOUS TREE EXISTING TREE STUMP EXISTING IRON PIPE FOUND EXISTING IRON ROD FOUND EXISTING CAPPED IRON ROD EXISTING BENCHMARK EXISTING SANITARY MANHOLE EXISTING CLEANOUT EXISTING DRAINAGE MANHOLE EXISTING CATCH BASIN EXISTING CATCH BASIN ROUND EXISTING ELECTRIC METER EXISTING ELECTRIC BOX EXISTING ELECTRIC TRANSFORMER EXISTING GUY WIRE EXISTING UTILITY POLE EXISTING AIR CONDITION COMPRESSOR EXISTING PANEL/SWITCH BOX EXISTING CONDUIT TO/FROM UNDERGROUND EXISTING UNKNOWN MANHOLE

### × BW: 200.3 X TW: 200.3 X FF: 200.3 X R: 216.3 X 1:200.3

EXISTING SPOT BOTTOM WALL EXISTING SPOT TOP WALL EXISTING FINISHED FLOOR ELEVATION EXISTING RIM ELEVATION EXISTING INVERT ELEVATION

# SCALE IN FEET 1"=10' ORIGINAL SCALE IN INCHES

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BENCHMARK

ELEV.=330.02

CONCRETE

SPIKE

CONCRETE

GRA VEL

I HEREBY CERTIFY THAT THIS SURVEY MAP IS BASED ON AN ACTUAL FIELD SURVEY COMPLETED OCTOBER 15, 2020 AND THAT THIS SURVEY MAP WAS MADE BY ME OR UNDER MY DIRECTION, AND CONFORMS WITH THE MINIMUM STANDARD OF PRACTICE ADOPTED BY THE NEW YORK STATE ASSOCIATION OF PROFESSIONAL LAND SURVEYORS.

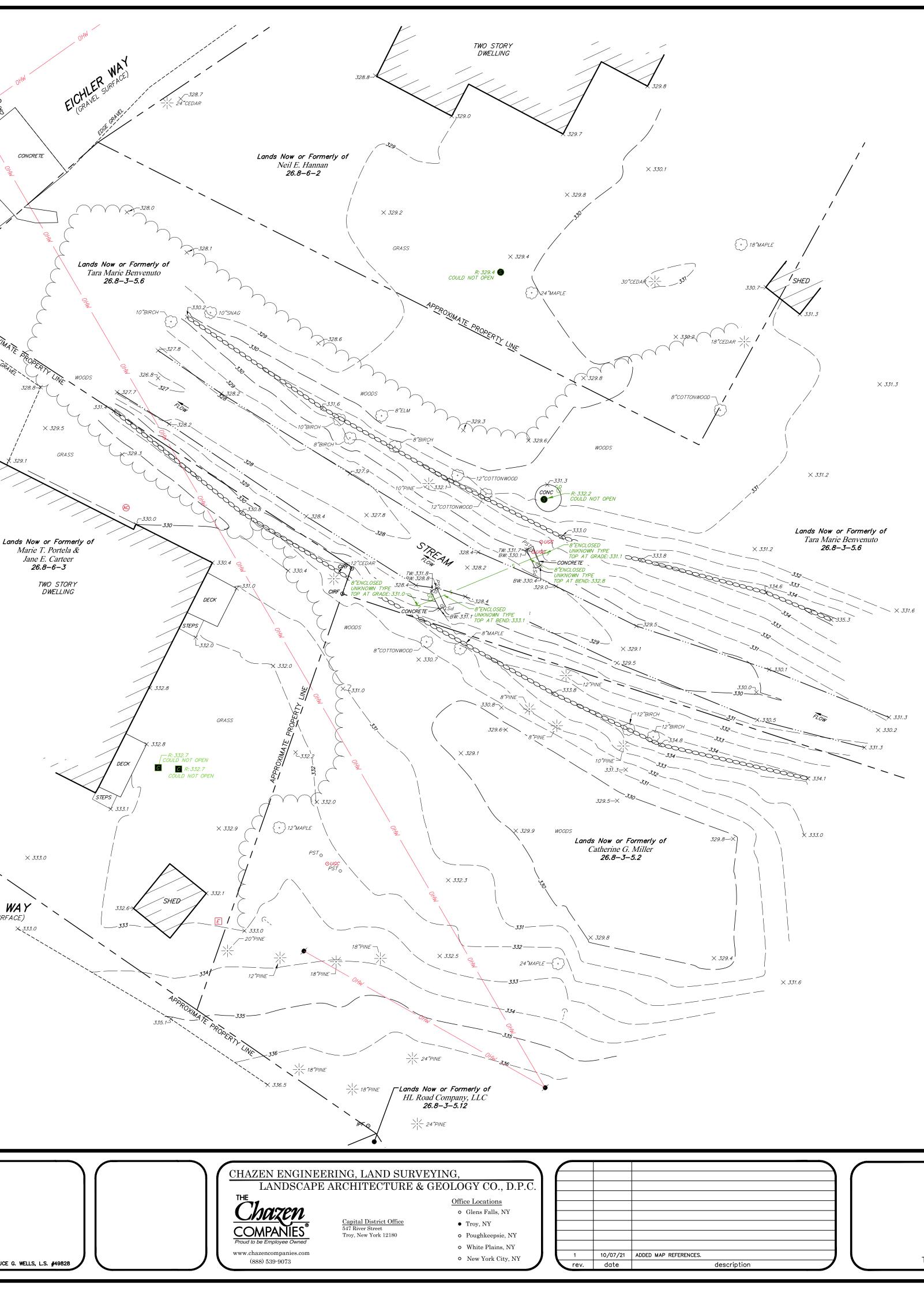
BRUCE G. WELLS, L.S. #49828

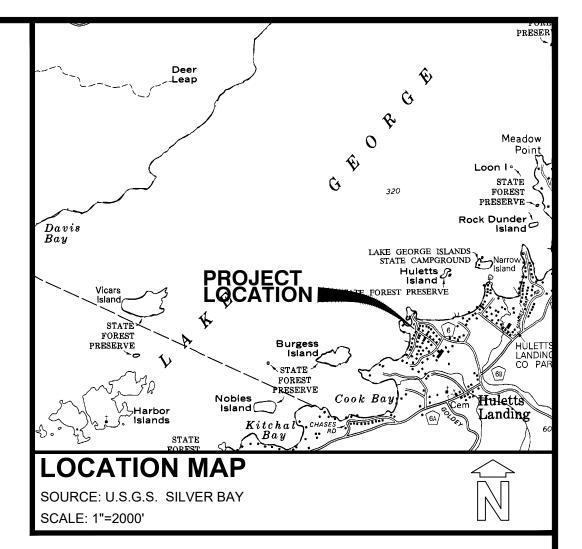
JAQUES WAY

(GRAVEL SURFACE)

★ 333.0

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# **GENERAL NOTES:**

UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209, SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

SUBSURFACE STRUCTURES NOT VISIBLE OR READILY APPARENT ARE NOT SHOWN AND THEIR LOCATION AND EXTENT ARE NOT CERTIFIED.

THE CONTRACTOR SHALL COMPLY WITH NEW YORK STATE INDUSTRIAL CODE RULE 53 - 48 HOURS PRIOR TO DIGGING CALL U.F.P.O. 1-800-962-7962 TO HAVE PUBLIC UTILITY LOCATIONS PAINTED.

HORIZONTAL DATUM AND NORTH ORIENTATION ARE BASED ON THE NYS PLANE COORDINATE SYSTEM (NAD83-EAST ZONE) UTILIZING STATIC GNSS OBSERVATIONS. HORIZONTAL DATUM WAS DETERMINED BY GNSS OBSERVATIONS AT THE TIME OF FIELD SURVEY. (OCTOBER 2020).

VERTICAL DATUM IS REFERENCED TO LAKE GEORGE WATER ELEVATION AS POSTED BY USGS, LAKE GEORGE AT ROGERS ROCK NY. LAKE ELEVATION MEASURED ON OCTOBER 15, 2020 AT 5:18PM. POSTED ELEVATION 319.07 (NAVD88)

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THE SURVEYOR DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

PROPERTY LINES SHOWN HEREON ARE APPROXIMATE PER MAP REFERENCES AND GIS TAX LINES. A BOUNDARY SURVEY WAS NOT PERFORMED BY THE CHAZEN COMPANIES.

# **MAP REFERENCES:**

1. MAP ENTITLED "CHRISTOPHER A. HUDSON", PREPARED BY JOHN F. GRADY, DATED JUNE 26, 2008.

2. MAP ENTITLED "PATRICIA PORTELA & PATRICK GORMAN", PREPARED BY JOHN F. GRADY, DATED JUNE 28, 2017.

# FLOOD ZONE CLASSIFICATION:

LANDS ARE SHOWN TO LIE WITHIN "SPECIAL FLOOD HAZARD AREA INUNDATED BY 100-YEAR FLOOD", ZONE A (NO BASE FLOOD ELEVATIONS DETERMINED) AND ZONE AE (BASE FLOOD ELEVATIONS DETERMINED - ELEVATION=321.00 NGVD 1929), "OTHER FLOOD AREAS", ZONE X (AREAS OF 500-YEAR FLOOD; AREAS OF 100-YEAR FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 100-YEAR FLOOD), AS SHOWN ON FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), NATIONAL FLOOD INSURANCE PROGRAM (NFIP) FLOOD INSURANCE RATE MAP (FIRM) FOR THE TOWN OF DRESDEN, WASHINGTON COUNTY, NEW YORK IDENTIFIED AS COMMUNITY MAP NUMBER 3614100005B BEARING A REVISION DATE OF SEPTEMBER 20, 1996.

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321.00 (NGVD29) = 320.59 (NAVD88)

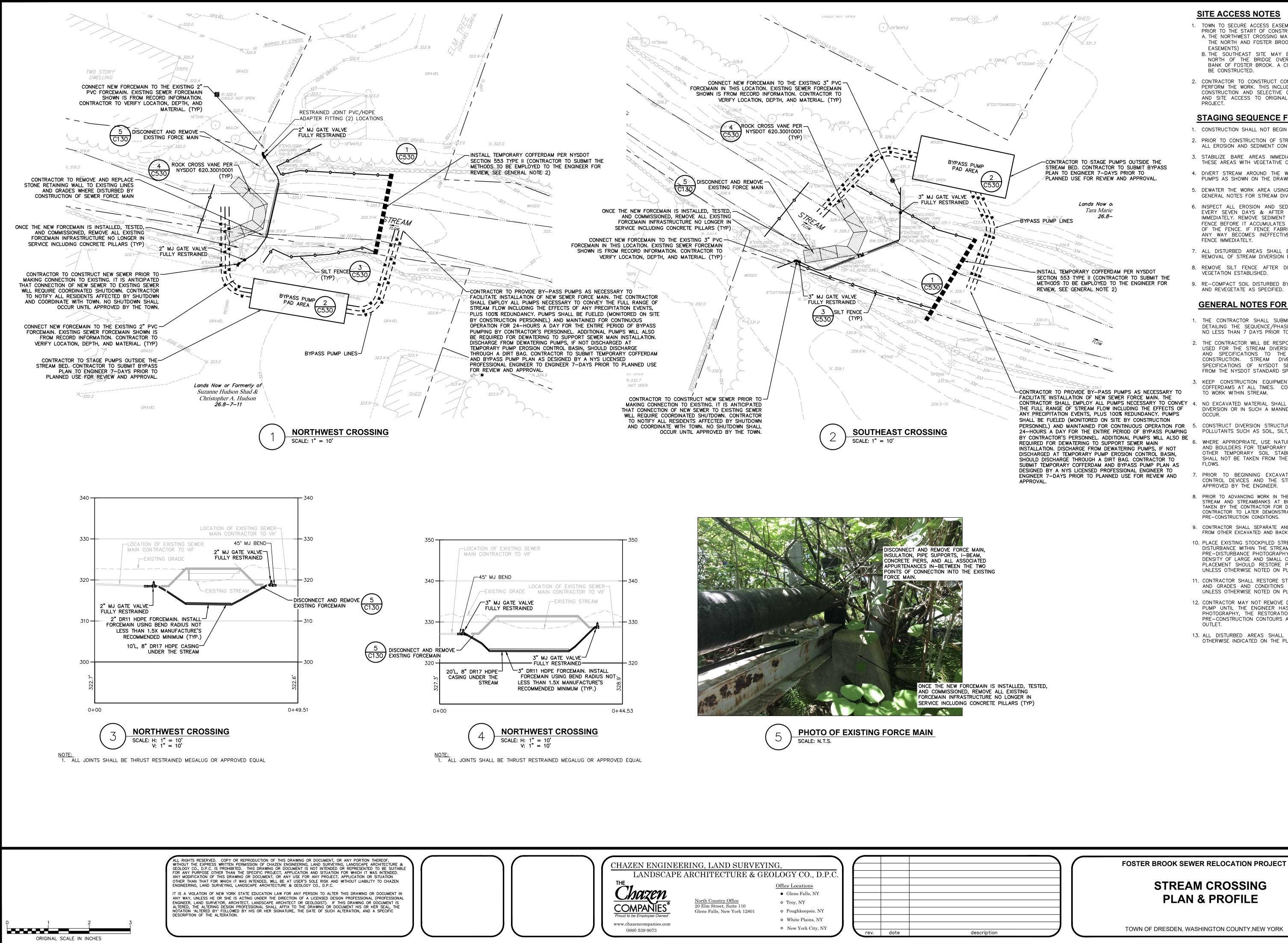
CONVERSION:

TOWN OF DRESDEN, WASHINGTON COUNTY, NEW YORK

LAKE GEORGE ASSOCIATION

**FOSTER BROOK** 

**EXISTING CONDITIONS** 



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### -CONTRACTOR TO PROVIDE BY-PASS PUMPS AS NECESSARY TO FACILITATE INSTALLATION OF NEW SEWER FORCE MAIN. THE THE FULL RANGE OF STREAM FLOW INCLUDING THE EFFECTS OF ANY PRECIPITATION EVENTS, PLUS 100% REDUNDANCY. PUMPS SHALL BE FUELED (MONITORED ON SITE BY CONSTRUCTION 24-HOURS A DAY FOR THE ENTIRE PERIOD OF BYPASS PUMPING BY CONTRACTOR'S PERSONNEL. ADDITIONAL PUMPS WILL ALSO BE INSTALLATION. DISCHARGE FROM DEWATERING PUMPS, IF NOT DISCHARGED AT TEMPORARY PUMP EROSION CONTROL BASIN, SHOULD DISCHARGE THROUGH A DIRT BAG. CONTRACTOR TO SUBMIT TEMPORARY COFFERDAM AND BYPASS PUMP PLAN AS DESIGNED BY A NYS LICENSED PROFESSIONAL ENGINEER TO

# SITE ACCESS NOTES

- 1. TOWN TO SECURE ACCESS EASEMENTS FOR CONSTRUCTION & MAINTENANCE PRIOR TO THE START OF CONSTRUCTION. A. THE NORTHWEST CROSSING MAY BE ACCESSED BY ELM TREE PATH FROM THE NORTH AND FOSTER BROOK PATH ON THE SOUTH (PENDING ACCESS
- EASEMENTS) B. THE SOUTHEAST SITE MAY BE ACCESSED FROM EICHLER WAY JUST NORTH OF THE BRIDGE OVER FOSTER BROOK ALONG THE NORTHERN BANK OF FOSTER BROOK. A CONSTRUCTION ACCESS DRIVE WILL NEED TO BE CONSTRUCTED.
- 2. CONTRACTOR TO CONSTRUCT CONSTRUCTION ACCESS DRIVES REQUIRED TO PERFORM THE WORK. THIS INCLUDES BUT IS NOT LIMITED TO ACCESS ROAD CONSTRUCTION AND SELECTIVE CLEARING. CONTRACTOR TO RESTORE SITE AND SITE ACCESS TO ORIGINAL CONDITIONS UPON COMPLETION OF THE PROJECT.

# STAGING SEQUENCE FOR CONSTRUCTION

- 1. CONSTRUCTION SHALL NOT BEGIN UNTIL AFTER SEPTEMBER 1, 2021.
- 2. PRIOR TO CONSTRUCTION OF STREAM DIVERSION CONTRACTOR SHALL HAVE ALL EROSION AND SEDIMENT CONTROL MEASURES IN PLACE. 3. STABILIZE BARE AREAS IMMEDIATELY AFTER WORK TAKES PLACE. TOP
- THESE AREAS WITH VEGETATIVE COVER PER PLAN. 4. DIVERT STREAM AROUND THE WORK AREA BY USE OF COFFERDAM AND
- PUMPS AS SHOWN ON THE DRAWINGS. 5. DEWATER THE WORK AREA USING GEOTEXTILE FILTER BAG (DIRT BAG). SEE
- GENERAL NOTES FOR STREAM DIVERSION FOR MORE INFORMATION. 6. INSPECT ALL EROSION AND SEDIMENT CONTROL MEASURES FOR DAMAGE
- EVERY SEVEN DAYS & AFTER EVERY RAIN EVENT. MAKE ALL REPAIRS IMMEDIATELY. REMOVE SEDIMENT FROM THE UP-SLOPE FACE OF THE SILT FENCE BEFORE IT ACCUMULATES TO A HEIGHT EQUAL TO 1/3 THE HEIGHT OF THE FENCE. IF FENCE FABRIC TEARS, BEGINS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED SECTION OF FENCE IMMEDIATELY.
- 7. ALL DISTURBED AREAS SHALL BE RESTORED AND STABILIZED PRIOR TO REMOVAL OF STREAM DIVERSION BARRIERS.
- 8. REMOVE SILT FENCE AFTER DISTURBED AREAS HAVE AT LEAST 80% VEGETATION ESTABLISHED. 9. RE-COMPACT SOIL DISTURBED BY SILT FENCE INSTALLATION AND REMOVAL AND REVEGETATE AS SPECIFIED.

# **GENERAL NOTES FOR STREAM DIVERSION**

- 1. THE CONTRACTOR SHALL SUBMIT A DETAILED STREAM DIVERSION PLAN DETAILING THE SEQUENCE/PHASING OF CONSTRUCTION TO THE ENGINEER NO LESS THAN 7 DAYS PRIOR TO THE START OF WORK FOR APPROVAL.
- 2. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE SELECTION OF MATERIALS USED FOR THE STREAM DIVERSION BARRIER AND SHALL SUBMIT DETAILS AND SPECIFICATIONS TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. STREAM DIVERSION BARRIER SHALL MEET THE SPECIFICATIONS OF NYSDOT SECTION 553-3 "CONSTRUCTION DETAILS" FROM THE NYSDOT STANDARD SPECIFICATIONS DATED SEPTEMBER 5, 2013.
- 3. KEEP CONSTRUCTION EQUIPMENT ON THE STREAM BANKS OR BEHIND COFFERDAMS AT ALL TIMES. CONSTRUCTION EQUIPMENT IS NOT PERMITTED TO WORK WITHIN STREAM.
- CONTRACTOR SHALL EMPLOY ALL PUMPS NECESSARY TO CONVEY 4. NO EXCAVATED MATERIAL SHALL BE STORED OR STOCKPILED NEXT TO THE DIVERSION OR IN SUCH A MANNER THAT SILTATION OF THE STREAM COULD OCCUR.
- PERSONNEL) AND MAINTAINED FOR CONTINUOUS OPERATION FOR 5. CONSTRUCT DIVERSION STRUCTURES WITH MATERIALS FREE OF POTENTIAL POLLUTANTS SUCH AS SOIL, SILT, SAND, CLAY, GREASE, OR OIL.
  - WHERE APPROPRIATE, USE NATURAL MATERIALS SUCH AS LARGE COBBLES AND BOULDERS FOR TEMPORARY EMBANKMENT AND SLOPE PROTECTION. OR OTHER TEMPORARY SOIL STABILIZATION METHODS. THESE MATERIALS SHALL NOT BE TAKEN FROM THE STREAMBED WHERE THE EXISTING STREAM FLOWS.
  - PRIOR TO BEGINNING EXCAVATION, THE EROSION AND SEDIMENTATION CONTROL DEVICES AND THE STREAM PUMP AROUND DEVICES SHALL BE APPROVED BY THE ENGINEER.
  - 8. PRIOR TO ADVANCING WORK IN THE STREAM, PHOTOGRAPHS OF THE DEWATERED STREAM AND STREAMBANKS AT BOTH THE INLET AND OUTLET END SHALL BE TAKEN BY THE CONTRACTOR FOR DOCUMENTATION PURPOSES IN ORDER FOR THE CONTRACTOR TO LATER DEMONSTRATE THAT THE SITE HAS BEEN RESTORED TO PRE-CONSTRUCTION CONDITIONS.
  - 9. CONTRACTOR SHALL SEPARATE AND STORE STREAM BED MATERIAL FOR REUSE FROM OTHER EXCAVATED AND BACKFILL MATERIALS.
  - 10. PLACE EXISTING STOCKPILED STREAM BED MATERIAL IN AREAS OF DISTURBANCE WITHIN THE STREAM LIMITS BY HAND USING PRE-DISTURBANCE PHOTOGRAPHY AS A GUIDE FOR PLACEMENT AND DENSITY OF LARGE AND SMALL COBBLES, ROCKS AND SILT. THE PLACEMENT SHOULD RESTORE PRE-EXISTING CONDITIONS AND CONTOURS UNLESS OTHERWISE NOTED ON PLANS.
  - 11. CONTRACTOR SHALL RESTORE STREAM BED AND BANKS TO ORIGINAL LINES AND GRADES AND CONDITIONS WITH STOCKPILED STREAM BED MATERIAL UNLESS OTHERWISE NOTED ON PLANS.
  - 12. CONTRACTOR MAY NOT REMOVE DEWATERING COFFERDAM OR BY-PASS PUMP UNTIL THE ENGINEER HAS APPROVED AND DOCUMENTED, THROUGH PHOTOGRAPHY, THE RESTORATION OF THE STREAM BED AND BANKS TO PRE-CONSTRUCTION CONTOURS AND CONDITIONS AT THE INLET AND OUTLET.
  - 13. ALL DISTURBED AREAS SHALL BE STABILIZED & REVEGETATED, OR AS OTHERWISE INDICATED ON THE PLANS.

FOSTER BROOK SEWER RELOCATION PROJECT
STREAM CROSSING

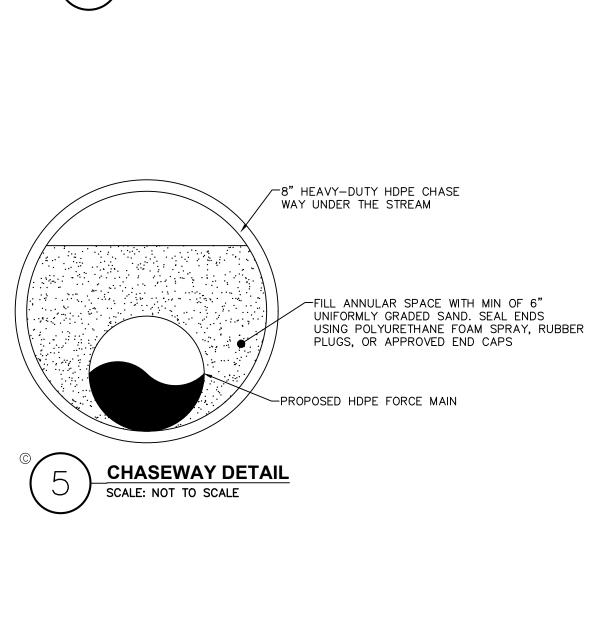
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TOWN OF DRESDEN, WASHINGTON COUNTY, NEW YORK

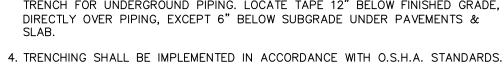


ORIGINAL SCALE IN INCHES

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3. INSTALL CONTINUOUS DETECTABLE MARKING TAPE DURING BACKFILLING OF TRENCH FOR UNDERGROUND PIPING. LOCATE TAPE 12" BELOW FINISHED GRADE,

IN NON-TRAFFIC UNPAVED AREAS TRENCH BACKFILL CAN BE MATERIALS EXCAVATED FROM THE TRENCH AS APPROVED BY THE ENGINEER AND COMPACTED TO 90% MODIFIED PROCTOR.

NO. 200 0-10%

NO. 40 0-70%

12"

FOLLOWING GRADATION REQUIREMENTS:

FOLLOWING GRADATION REQUIREMENTS:

SIEVE DESIGNATION

3/4'

NO. 40

NO. 200

с Ш

100%

SIEVE DESIGNATION <u>% PASSING</u>

-12"

PLAN

. PIPE BEDDING & PIPE ZONE BACKFILL SHALL BE A NATURAL RUN-OF-BANK

GRADATIONS SHALL BE APPROVED BY THE ENGINEER AND SHALL MEET THE

<u>% PASSING</u>

100% 0-70%

0–10%

PROCESSED GRAVEL, OR EXCAVATED MATERIAL FREE OF SOFT, NONDURABLE

PARTICLES, ORGANIC MATERIALS AND ELONGATED PARTICLES, AND SHALL BE

GRADATIONS SHALL BE APPROVED BY THE ENGINEER AND SHALL MEET THE

2. TRENCH BACKFILL SHALL BE A NATURAL RUN-OF-BANK (R.O.B.) OR

WELL GRADED FROM FINE TO COARSE PARTICLES. TRENCH BACKFILL

SHALL BE WELL GRADED FROM FINE TO COARSE PARTICLES. BEDDING

(R.O.B.) SAND OR A MIXTURE OF CRUSHED STONE AND GRAVEL, FREE OF SOFT,

NONDURABLE PARTICLES, ORGANIC MATERIALS AND ELONGATED PARTICLES, AND

-PIPE TYPE & SIZE VARIES. SEE

-FINISHED SURFACE IN ACCORDANCE

-DETECTABLE

WARNING TAPE PER DIG SAFE

TRENCH BACKFILL -

COMPACTED TO 95%

-PIPE BEDDING & PIPE ZONE

SILT FENCE TO BE

INSTALLED DOWN

DEWATERING BAG

DEWATERING BAGS SHALL BE

PLACED ON LEVEL GROUND OR GROUND WITH LESS THAN 2%

WATER FROM ESCAPING WITHOUT BEING FILTERED.

SLOPE OF

SLOPE.

SILT-

FENCE

(TYP)

NOTES:

CONDITIONS:

• WHEN BAGS ARE FULL

ULTRAVIOLET DETERIORATION).

• WHEN BAGS ARE DAMAGED.

BACKFILL MATERIAL FOR

MODIFIED PROCTOR

(SEE NOTE 2)

TRENCH BOTTOM

12"+50% O.D.

PIPE ZONE

**6**"+50% O.D.

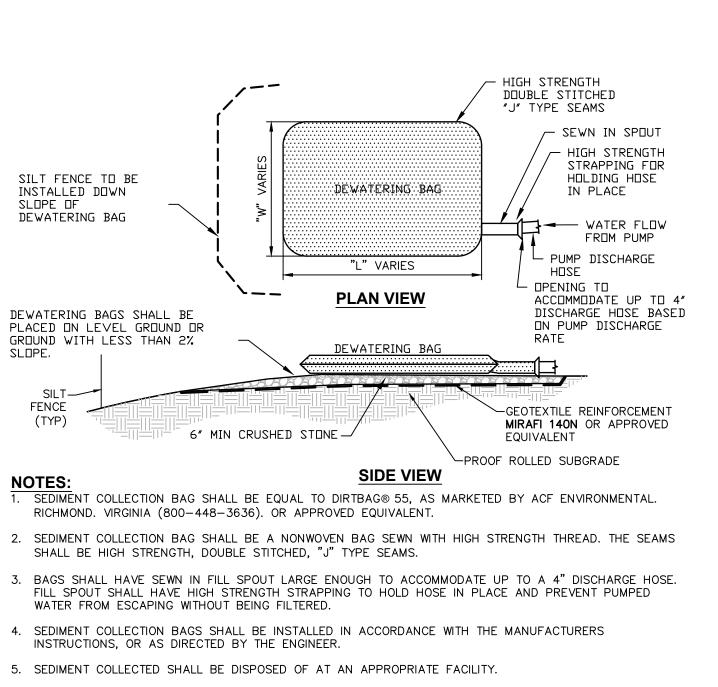
BACKFILL

BEDDING

COMPACTED TO 95%

MODIFIED PROCTOR

WITH PLAN & DETAILS.



6. SEDIMENT COLLECTION BAGS SHALL BE REMOVED AND REPLACED UNDER ANY OF THE FOLLOWING

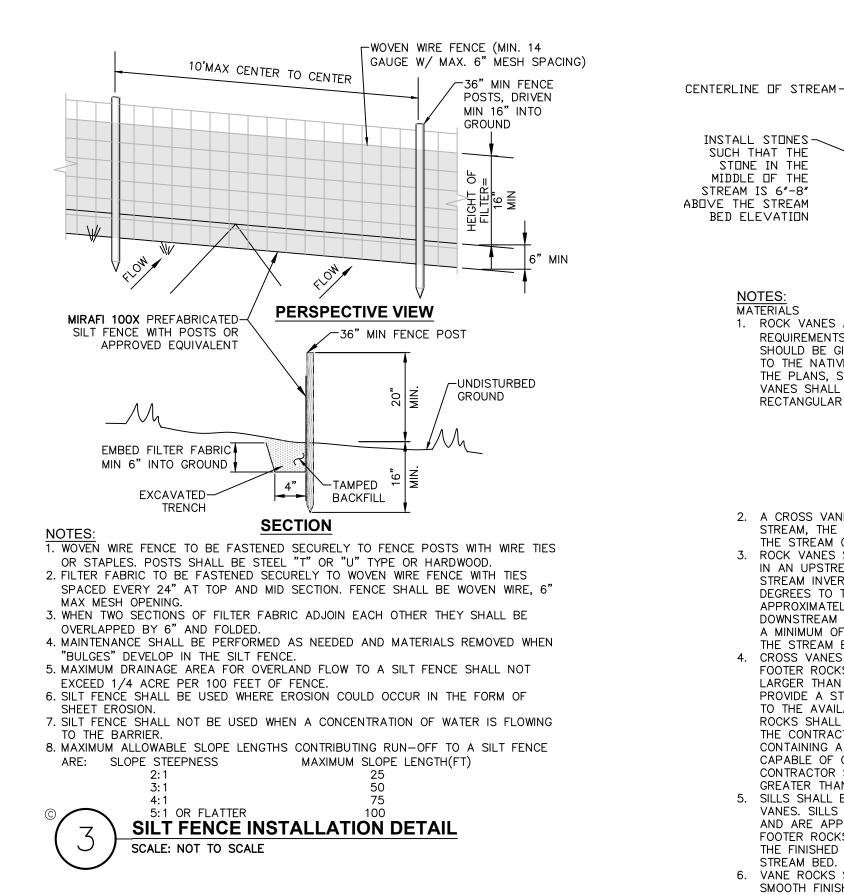
•WHEN BAGS HAVE BEEN IN PLACE FOR MORE THAN 30 DAYS (REMOVAL REQUIRED DUE TO

4. ALL SEDIMENT COLLECTION BAGS SHALL BE INSPECTED DAILY BY THE CONTRACTOR.

5. CARE SHALL BE TAKEN DURING REMOVAL TO MINIMIZE LOSS OF ENTRAPPED SEDIMENT.

SEDIMENT COLLECTION DEWATERING BAG DETAIL

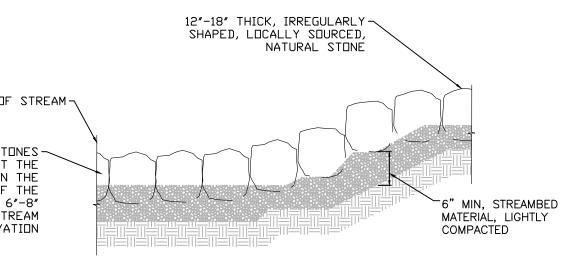
SCALE: NOT TO SCALE



	CHAZEN ENGINE	CRING, LAND SURVEY	ING.		$\frown$		
		ARCHITECTURE & GI	,	<u>.</u>			
	THE		Office Locations				
	<u>Chazen</u>	North Country Office	<ul><li>Glens Falls, NY</li><li>Troy, NY</li></ul>				
	<u>COMPANIES<sup>®</sup></u>	20 Elm Street, Suite 110 Glens Falls, New York 12801	• Poughkeepsie, NY				
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<b>)</b>	(888) 539-9073		• New York City, NY		<b>\</b>	 l	

rev. date

description



1. ROCK VANES AND CROSS VANES SHALL BE CONSTRUCTED OF STONE MEETING THE REQUIREMENTS OF \$620-2.01 OF THE STANDARD SPECIFICATIONS. CONSIDERATION SHOULD BE GIVEN TO OBTAINING STONE THAT IS SIMILAR IN COLOR AND TEXTURE TO THE NATIVE STONE IN THE PROJECT AREA. UNLESS OTHERWISE SPECIFIED ON THE PLANS, STONE USED FOR THE CONSTRUCTION OF ROCK VANES AND CROSS VANES SHALL BE SHAPED AS NEARLY AS PRACTICABLE IN THE FORM OF RIGHT RECTANGULAR PRISMS. STONES SHALL MEET THE FOLLOWING SIZE REQUIREMENTS.

	A-axis	<b>B</b> -axis	C-axis
Minimum Size	4 ft.	3 ft.	2 ft.
Maximum	8 ft.	6 ft.	5 ft.
Size			

2. A CROSS VANE, SHALL CONSIST OF TWO ROCK VANES ON EITHER SIDE OF THE STREAM, THE UPSTREAM ENDS OF WHICH ARE JOINED BY A SILL CONSTRUCTED IN THE STREAM CHANNEL

3. ROCK VANES SHALL BE CONSTRUCTED SO THAT ADJOINING ROCKS SLOPE DOWN, IN AN UPSTREAM DIRECTION, FROM THE STREAM BANK FULL ELEVATION TO THE STREAM INVERT. THE ROCK VANE IS TYPICALLY SET AT AN ANGLE OF 20-30 DEGREES TO THE STREAM BANK. WITH THE UPSTREAM END LOCATED APPROXIMATELY ONE THIRD THE CHANNEL WIDTH FROM THE STREAM BANK. THE DOWNSTREAM END OF THE ROCK VANE SHALL BE KEYED INTO THE STREAM BANK A MINIMUM OF 8 FEET. THE UPSTREAM END OF THE ROCK VANE IS KEYED INTO THE STREAM BED AT THE DESIGN INVERT ELEVATION OF THE STREAM BED. CROSS VANES AND ROCK VANES ARE COMPRISED OF TWO LAYERS OF ROCK: FOOTER ROCKS AND VANE ROCKS. FOOTER ROCKS SHALL BE THE SAME SIZE OR LARGER THAN THE VANE ROCKS WHICH REST ON THEM, AND SHALL BE SET TO PROVIDE A STABLE BASE FOR THE VANE ROCKS. CONSIDERATION SHALL BE GIVEN TO THE AVAILABLE SIZES OF FOOTER AND VANE ROCKS TO ENSURE THE VANE ROCKS SHALL HAVE A SMOOTH FINISHED GRADE. TO ENSURE PROPER PLACEMENT. THE CONTRACTOR SHALL HAVE AN EXCAVATOR OF A SUITABLE SIZE. AND CONTAINING A THUMB, OR OTHER EQUIPMENT ACCEPTABLE TO THE ENGINEER, CAPABLE OF CAREFULLY PLACING ROCKS AT PRECISE LOCATIONS. THE CONTRACTOR SHALL CHINK ALL VOIDS BETWEEN ROCKS SUCH THAT NO VOIDS GREATER THAN 4 INCHES IN SIZE WILL BE PRESENT.

5. SILLS SHALL BE CONSTRUCTED SIMILARLY TO THE UPSTREAM ENDS OF THE ROCK VANES. SILLS ARE TYPICALLY SET PERPENDICULAR TO THE FLOW OF THE STREAM, AND ARE APPROXIMATELY ONE THIRD THE CHANNEL WIDTH IN LENGTH. THE FOOTER ROCKS AND VANE ROCKS SHALL BE KEYED INTO THE STREAM BED, WITH THE FINISHED GRADE OF THE SILL AT THE DESIGN INVERT OF THE PROPOSED STREAM BED VANE ROCKS SHALL BE PLACED IN A LINEAR FASHION SO AS TO PRODUCE A SMOOTH FINISHED GRADE FOR THE ROCK VANE OR CROSS VANE, AND SHALL BE PLACED SO AS TO MINIMIZE VOID SPACES BETWEEN THE ADJACENT ROCKS. THE SPACES BETWEEN VANE ROCKS, AND BETWEEN THE VANE ROCKS AND FOOTER

> **ROCK CROSS VANE DETAIL** SCALE: NOT TO SCALE

ROCKS, SHALL BE FILLED WITH SPALLS OF SUITABLE SIZE.

FORCE MAIN TESTING:

- 1. THE COMPLETE PROPOSED SEWAGE FORCE MAIN INCLUDING VALVES, FITTINGS, AND CONNECTIONS, SHALL BE TESTED FOR LEAKAGE.
- 2. THE SYSTEM SHALL BE PRESSURIZED TO 1.5 TIMES THE PIPE WORKING PRESSURE AT THE LOWEST POINT OF THE MAIN OR 100 PSI, WHICHEVER IS GREATER. AFTER THIS PRESSURE, ±5 PSI, HAS BEEN MAINTAINED SUCCESSFULLY FOR ONE HOUR, THE LEAKAGE TEST SHALL BE PERFORMED FOR A PERIOD OF NO LESS THAN 2 HOURS. HYDROSTATIC TESTS SHALL BE PERFORMED AND SUCCESSFUL TEST RESULTS DERIVED IN ACCORDANCE WITH AWWA C 600-05, SECTION 5. IN NO CASE SHALL THE TEST PRESSURE EXCEED THE DESIGN PRESSURE LIMITS FOR ANY PIPE. THRUST RESTRAINT, FITTINGS, VALVES OR OTHER APPURTENANCE OF THE TEST SECTION.
- 3. IF THE LEAKAGE IN THE SYSTEM EXCEEDS THE SPECIFIED AMOUNT, MAKE ANY REPAIRS OR REPLACEMENTS NECESSARY TO REDUCE THE LEAKAGE TO THE REQUIRED LIMITS AND RETEST THE SYSTEM.

THE MAXIMUM ALLOWABLE LEAKAGE SHALL BE AS SHOWN IN THE FOLLOWING TABLE: ALLOWABLE LEAKAGE IN GALLONS PER 1000 FT OF PIPELINE (GPH).

AVG.	TEST	PRESSURE	NOMINAL	PIPE	DIAMETER-IN.
	PSI	2	4	6	
	450	0.29	0.57	0.86	
	400	0.27	0.54	0.81	
	350	0.26	0.51	0.76	
	300	0.24	0.47	0.70	
	275	0.23	0.45	0.67	
	250	0.22	0.43	0.64	
	225	0.21	0.41	0.61	
	200	0.19	0.38	0.57	
	175	0.18	0.36	0.54	
	150	0.17	0.33	0.50	
	125	0.15	0.30	0.45	
	100	0.14	0.27	0.41	

FOSTER BROOK SEWER RELOCATION PROJECT

SITE AND SEWER SYSTEM DETAILS

(				
designed	checked			
ZFB	тсс			
date	scale			
01/19/22	AS NOTE			
project no.				
92024.00				
sheet no.				
C5	570			
	-			

TOWN OF DRESDEN, WASHINGTON COUNTY, NEW YORK