CITY OF ALBUQUERQUE

Planning Department
Alan Varela, Director

Mayor Timothy M. Keller

June 21, 2024

Dustin Davidson, P.E.
WSP
2440 Louisiana Blvd NE Suite 400
Albuquerque, NM 87110

RE: Broadway Blvd - MLK to Lomas
Drainage Report
Engineer's Stamp Date: 06/21/24
Hydrology File: J14D210
CPN: 631996

Dear Mr. Davidson:

Based upon the information provided in your submittal received 06/07/2024, the Drainage Report is approved for Work Order.

As a reminder, if the project total area of disturbance (including the staging area and any work within the adjacent Right-of-Way) is 1 acre or more, then an Erosion and Sediment Control (ESC) Plan and Owner's certified Notice of Intent (NOI) is required to be submitted to the Stormwater Quality Engineer (Dough Hughes, PE, jhughes@cabq.gov, 924-3420) 14 days prior to any earth disturbance.

If you have any questions, please contact me at 924-3995 or rbrissette@cabq.gov.

Sincerely,

Renée C. Brissette

Renée C. Brissette, P.E. CFM
Senior Engineer, Hydrology
Planning Department

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

City of Albuquerque

Planning Department
Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (DTIS)

Project Title: Broadway Blvd - MLK to Lomas CPN 6319.96 Hydrology File # _____
Legal Description: No parcel associated, CABQ road Right-of-Way
City Address, UPC, OR Parcel: Broadway Blvd - MLK to Lomas

Applicant/Agent: Dustin Davidson Contact: 505-878-6584
Address: 2400 Louisiana Blvd NE Suite 400 Albuquerque NM 87110 Phone: 575-302-2575
Email: dustin.davidson@wsp.com

Applicant/Owner: City of Albuquerque - Abe Bortz-Johnson Contact: 505-768-2778
Address: 1 Civic Plaza Phone: _____
Email: abortz-johnson@cabq.gov

TYPE OF DEVELOPMENT: ☐ Plat (# of lots) _____ ☐ Single Family Home
☑ All other Developments

RE-SUBMITTAL: ☐ YES ☐ NO

DEPARTMENT: ☐ TRANSPORTATION ☑ HYDROLOGY/DRAINAGE

Check all that apply under Both the Type of Submittal and the Type of Approval Sought:

TYPE OF SUBMITTAL:

- ☐ Engineering / Architect Certification
- ☐ Conceptual Grading & Drainage Plan
- ☑ Grading & Drainage Plan, and/or Drainage Report
- ☐ Drainage Report (Work Order)
- ☐ Drainage Master Plan
- ☐ Conditional Letter of Map Revision (CLOMR)
- ☐ Letter of Map Revision (LOMR)
- ☐ Floodplain Development Permit
- ☐ Traffic Circulation Layout (TCL) – Administrative
- ☐ Traffic Circulation Layout (TCL) – DFT Approval
- ☐ Traffic Impact Study (TIS)
- ☐ Street Light Layout
- ☐ OTHER (SPECIFY) _____

TYPE OF APPROVAL SOUGHT:

- ☐ Pad Certification
- ☐ Building Permit
- ☐ Grading Permit
- ☐ Paving Permit
- ☐ SO-19 Permit
- ☐ Foundation Permit
- ☐ Certificate of Occupancy - ☐ Temp ☐ Perm
- ☐ Preliminary / Final Plat
- ☐ Site Plan for Building Permit - DFT
- ☐ Work Order (DRC)
- ☐ Release of Financial Guarantee (ROFG)
- ☐ CLOMR / LOMR
- ☐ Conceptual TCL - DFT
- ☑ OTHER (SPECIFY) Hydrology Approval of CPN 6319.96 Drainage Report

DATE SUBMITTED: _____

REV. 04/03/24

City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION
APPROVED
DATE: 06/21/24
BY: Renée C. Brissette
HydroTrans # J14D210

THE APPROVAL OF THESE PLANS/REPORT SHALL NOT BE CONSTRUED TO PERMIT VIOLATIONS OF ANY CITY ORDINANCE OR STATE LAW, AND SHALL NOT PREVENT THE CITY OF ALBUQUERQUE FROM REQUIRING CORRECTION, OR ERROR OR DIMENSIONS IN PLANS, SPECIFICATIONS, OR CONSTRUCTIONS. SUCH APPROVED PLANS SHALL NOT BE CHANGED, MODIFIED OR ALTERED WITHOUT AUTHORIZATION.

DEPARTMENT OF MUNICIPAL DEVELOPMENT

BROADWAY BLVD RECONSTRUCTION FROM DR. MARTIN LUTHER KING JR AVENUE TO LOMAS BLVD

DRAINAGE MEMO
CITY PROJECT NO. 6319.96

Prepared by:

DUSTIN DAVIDSON
NEW MEXICO
26703
REGISTERED PROFESSIONAL ENGINEER
6/21/24

TABLES

APPENDICES

1 EXECUTIVE SUMMARY

WSP was contracted to design roadway improvements on Broadway Blvd. from Dr. Martin Luther King Blvd. (MLK) to just south of Lomas Blvd. A drainage analysis was also performed to support the roadway improvements to assess existing drainage conditions and to assess what improvements would be viable in the design corridor. The intersection of Broadway and Lomas is currently in a FEMA flood hazard zone designated Zone AH. The surrounding areas have experienced significant flooding in the past.

This area of the city is part of the Mid-Valley watershed, analyzed in the Mid Valley Drainage Master Plan completed in 2012. The study determined that this area of town had severe limitations in storm drain capacity due to old infrastructure, lack of slope in the storm drains and restrictions imposed by the storage - discharge capacity of the old Broadway Pump Station and the Barelas Pump Station. The valley conditions in this area have a significant impact on the function and connectivity of the hydraulic grade line in the storm drains as well. Any alterations to inflow hydrographs upstream or downstream tend to affect the function of the storm drain systems over long distances.

Broadway Blvd. also receives some offsite flows from its adjacent southern watershed, the South Broadway watershed which was analyzed in the South Broadway Drainage Master Plan, prepared originally in 2013.The offsite flows were reassessed and significantly reduced in the South Broadway Impact Analysis, prepared in 2018.

Since the completion of these studies, the Marble Arno Pump station and associated storm drainage improvements have been constructed in 2022 at the intersection of Broadway Blvd and Lomas Blvd. While this project has significantly improved the Broadway system, as delineated in the Mid Valley Drainage Master Plan, the existing infrastructure in Broadway Blvd and within the design corridor now drains to the Barelas system which still has capacity issues. A detailed reassessment of the Barelas system capacity, and an update to the Mid Valley Drainage Master Plan will eventually be required to fully understand where the new constraints will occur post Marble Arno Pump Station. This was well beyond the scope of the drainage analysis required to support the roadway improvements for this study.

Due to the unknown capacity issues in the Barelas system, a high degree of caution was taken to not make major changes in the existing system in Broadway Blvd, within the limits of this roadway project until a comprehensive analysis of the Barelas system is completed. As such, any proposed improvements recommended as part of the roadway improvements were limited to replacing clogged inlets and laterals.

2 INTRODUCTION

2.1 SCOPE

WSP was contracted to design roadway improvements on Broadway Blvd. to Dr. Martin Luther King Jr. Blvd. (MLK) An analysis of existing and proposed conditions was completed and is described in this memo.

2.2 EXISTING CONDITIONS

2.2.1 BROADWAY BOULEVARD

Roadway runoff within Broadway Blvd. flows north through the project limits; however, runoff not captured by inlets within the southbound lane of Broadway split at Marquette Ave. and Roma Ave. Three separate storm drain systems exist within Broadway Blvd.

The first system is the South Broadway System. The only infrastructure in the project limits that connect to this system are the two inlets, their laterals and the accompanying trunkline. The inlet in the southbound lane of Broadway in this system is 100% clogged with sediment during both WSP's field review and our Survey subconsultant's field work. The second system is the Barelas System in Broadway Blvd flowing to the north The third system is a forcemain that is no longer connected to the surface and is abandoned in place within the outside southbound lane. These systems can be seen in **Exhibit 1** at the back of the report.

2.2.2 MARQUETTE AND ROMA AVENUE

Roadway runoff within the southbound lane of Broadway Blvd. splits off at Marquette Ave. and Roma Ave. and drains west towards Commercial St.. This was confirmed by the 2D model completed under the South Broadway Impact Analysis. The majority of the offsite flows from MLK split off into these two streets.

2.2.3 INLET HYDRAULIC GRADE LINE

Due to the Lomas storm drain system being undersized, the existing (and proposed) hydraulic grade line (HGL) is above the inlet grate elevation for many of the inlets in Broadway Blvd.. Existing and proposed HGLs for the inlets and lateral pipes are shown in **Appendix A**.

3 HYDROLOGY

3.1 OFFSITE HYDROLOGY

As mentioned in **Section 2.2.2**, the South Broadway Impact Analysis had approximately 57 cfs bypass the inlets at the Broadway Blvd./MLK intersection. 8.88 cfs of the 57 cfs stays within Broadway Blvd. split between the northbound and southbound lanes.

3.2 ONSITE HYDROLOGY

The project is within Basin BR19.1 of the Mid-Valley Drainage Management Plan (DMP). The Stormwater Management Model (SWMM) from the DMP was modified with basin splits at inlets, and the southbound lane of Broadway Blvd. at Marquette Ave. and Roma Ave. The new basins are shown in **Figure 1** and summarized in **Table 1**.

Figure 1: Modified Basin Map

Table 1: Modified Basin Summary

BASIN	AREA (AC)	100-YR Q (CFS)
19.1.0	0.75	1.13
19.1.1	2.11	8.17
19.1.2	0.15	0.8
19.1.3	1.6	5.14
19.1.4	0.99	3.18
19.1.5	1.92	6.63
19.1.6	0.16	0.8
19.1.7	2.67	8.39
19.1.8	1.32	5.47

4 HYDRAULICS

The existing storm drain, existing inlets, proposed inlets, and proposed laterals were analyzed using Bentley's StormCAD to ensure the 100-year Hydraulic Grade Line (HGL) and Energy Grade Line (EGL) meet City criteria. The HGL must be lower than the street surface or ground elevation, and the EGL must be within the City's Right-of-Way. HEC-22 3rd Edition within StormCAD was used to calculate head losses.

4.1 INLET AND TRUNK LINE

Inlets in Broadway Blvd. and Roma Ave. were analyzed for City of Albuquerque criteria in Bentley's StormCAD Version 10.03. Inlet locations are shown in **Exhibit 1** at the back of this report. Inlet type, spread, depth, capture, and bypass shown in **Table 2 and 3**. Profiles with Hydraulic Grade Line (HGL) and Energy Grade Line (EGL) for the inlets can be found in **Appendix A**. The existing storm drain was found to be undersized but should not be replaced except for the clogged inlet and 18" lateral for SB-BR1 and the Type D inlet in Roma. Further discussion on proposed conditions can be found in **Section 5**.

Table 2: Existing Inlet Summary

INLET	INLET TYPE	SPREAD (FT)	DEPTH (IN)	CAPTURE (CFS)	BYPASS (CFS)
NB-BR1	Type C Single	16.1	3.9	4.14	1.10
NB-BR2	Type A Sing Wing Single Grate	15.1	3.6	3.46	0.95
NB-BR3	Type C Double	8.5	2.0	0.95	0.00
NB-BR4	Type A Single Wing Double Grate	19.3	4.6	7.20	1.19
SB-BR1	Type C Single	22.2	5.3	0.00	12.27
SB-BR2	Type D	25.4	6.1	9.84	7.66
EB-ROMA-1	Type C Double	13.6	3.3	3.20	0.12
WB-ROMA-1	Type D	8.0	1.9	0.72	0.08
WB-ROMA-2	Type C Double	13.8	3.3	3.30	0.13

Table 3: Proposed Inlet Summary

INLET	INLET TYPE	SPREAD (FT)	DEPTH (IN)	CAPTURE (CFS)	BYPASS (CFS)
NB-BR1	Type C Single	16.1	3.9	4.14	1.10
NB-BR2	Type A Sing Wing Single Grate	15.1	3.6	3.46	0.95
NB-BR3	Type C Double	8.5	2.0	0.95	0.00
NB-BR4	Type A Single Wing Double Grate	19.3	4.6	7.20	1.19
SB-BR1	Type A Single Wing Single Grate	22.2	5.3	5.39	6.88
SB-BR2	Type D	22.0	5.3	7.34	4.69
EB-ROMA-1	Type C Double	13.6	3.3	3.20	0.12
WB-ROMA-1	Type C Single	8.0	1.9	0.79	0.01
WB-ROMA-2	Type C Double	13.8	3.3	3.30	0.13

5 PROPOSED CONDITIONS

5.1 BROADWAY BLVD.

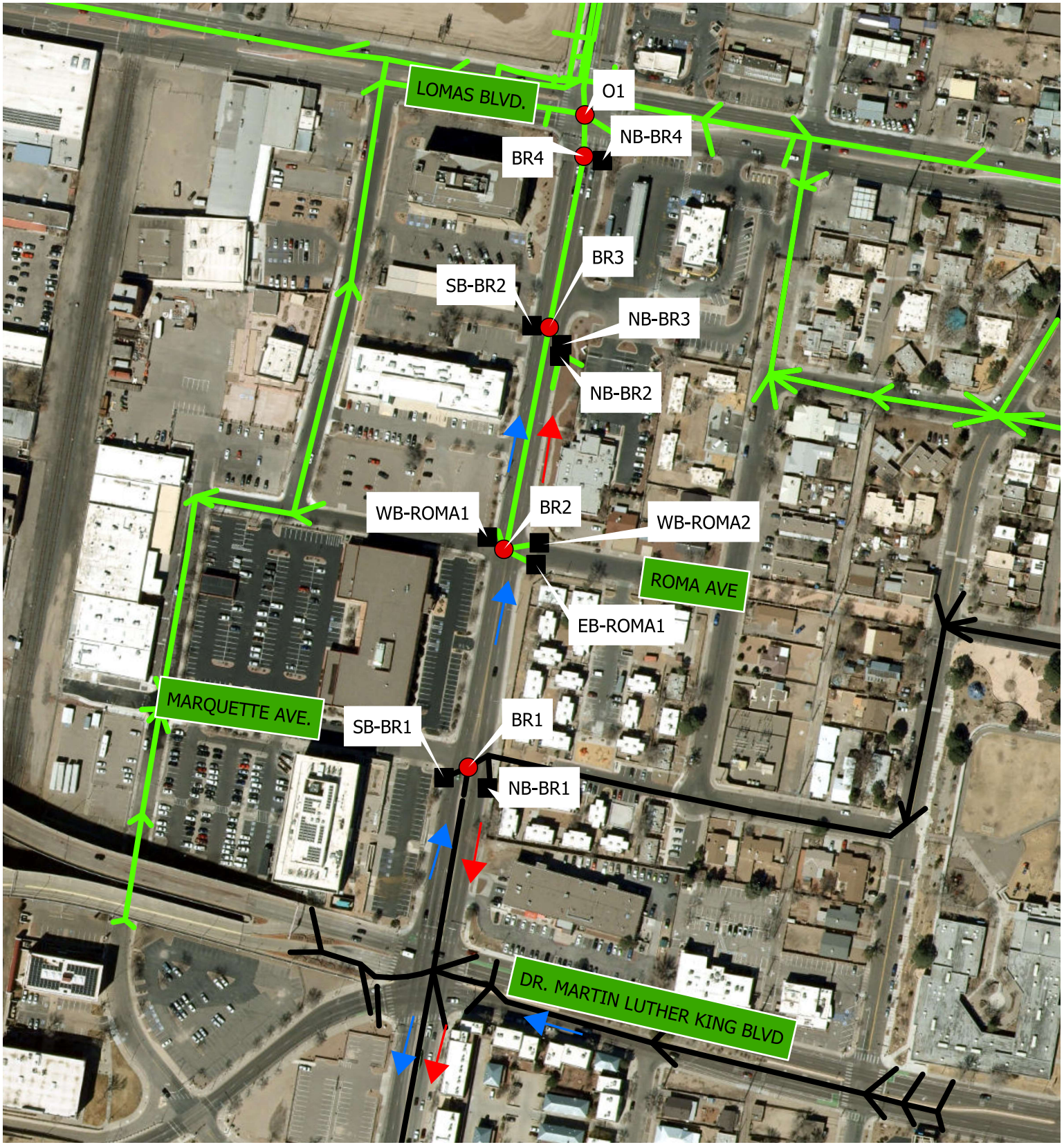
A landscaped median is proposed within Broadway Blvd. which will reduce the total runoff within Broadway Blvd. Inlet SB-BR1 just south of Marquette Ave. in the southbound lane of Broadway Blvd. is proposed to be upgraded to a Type A Single Grate Single Wing and its lateral pipe upgraded from an 18" pipe to a 24" pipe. See **Table 3** for proposed inlet type recommendations. The lateral pipe from SB-BR1 is recommended to be upsized from an 18" pipe to a 24" pipe due to the sediment 100% clogging the inlet. Inlet SB-BR2 in the southbound lane of Broadway Blvd. across from the Circle K and McDonald's at the Lomas intersection should stay in place. Moving this inlet so that it could be replaced with a curb drop inlet would interfere with the existing fire hydrant and adjacent turnout. Inlet Profiles of the proposed additions with the HGL and EGL plotted are included in **Appendix A**.

5.2 ROMA AVE.

Inlets in Roma Ave. on the east side of Broadway Blvd should remain in place. Inlet WB-ROMA1 on the northwest corner of the intersection with Broadway Blvd. is recommended to be upgraded to a Type C Single grate inlet and relocated to the west with the shift in the curb ramp. A slight roadway profile shift will be required in Roma to accommodate this shift. Profiles of the proposed conditions with the HGL and EGL plotted are included in **Appendix A**.

BIBLIOGRAPHY

- Smith Engineering. (2012). Mid-Valley Drainage Management Plan
- Smith Engineering. (2018). South Broadway Impact Analysis
- City of Albuquerque. (2020, June). Development Process Manual



South Broadway System

Barelas System

ExistingInlets

Manholes

Storm Drain Flow Direction

Surface Flow Direction

0 250 500 Feet

Exhibit 1

Broadway Blvd.
MLK to Lomas Blvd.
Albuquerque, New Mexico

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APPENDIX

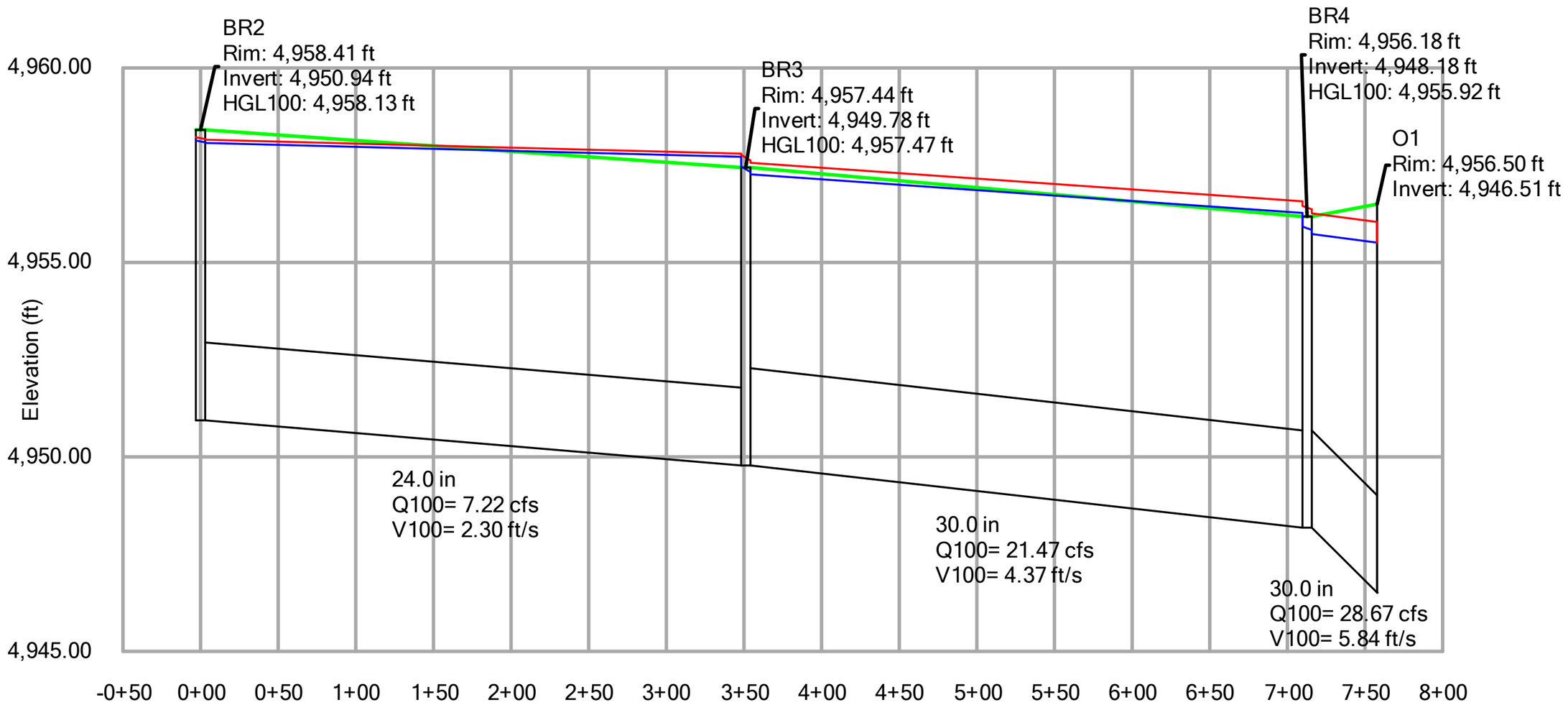
A STORM DRAIN PROFILES

APPENDIX

A.1 EXISTING PROFILES

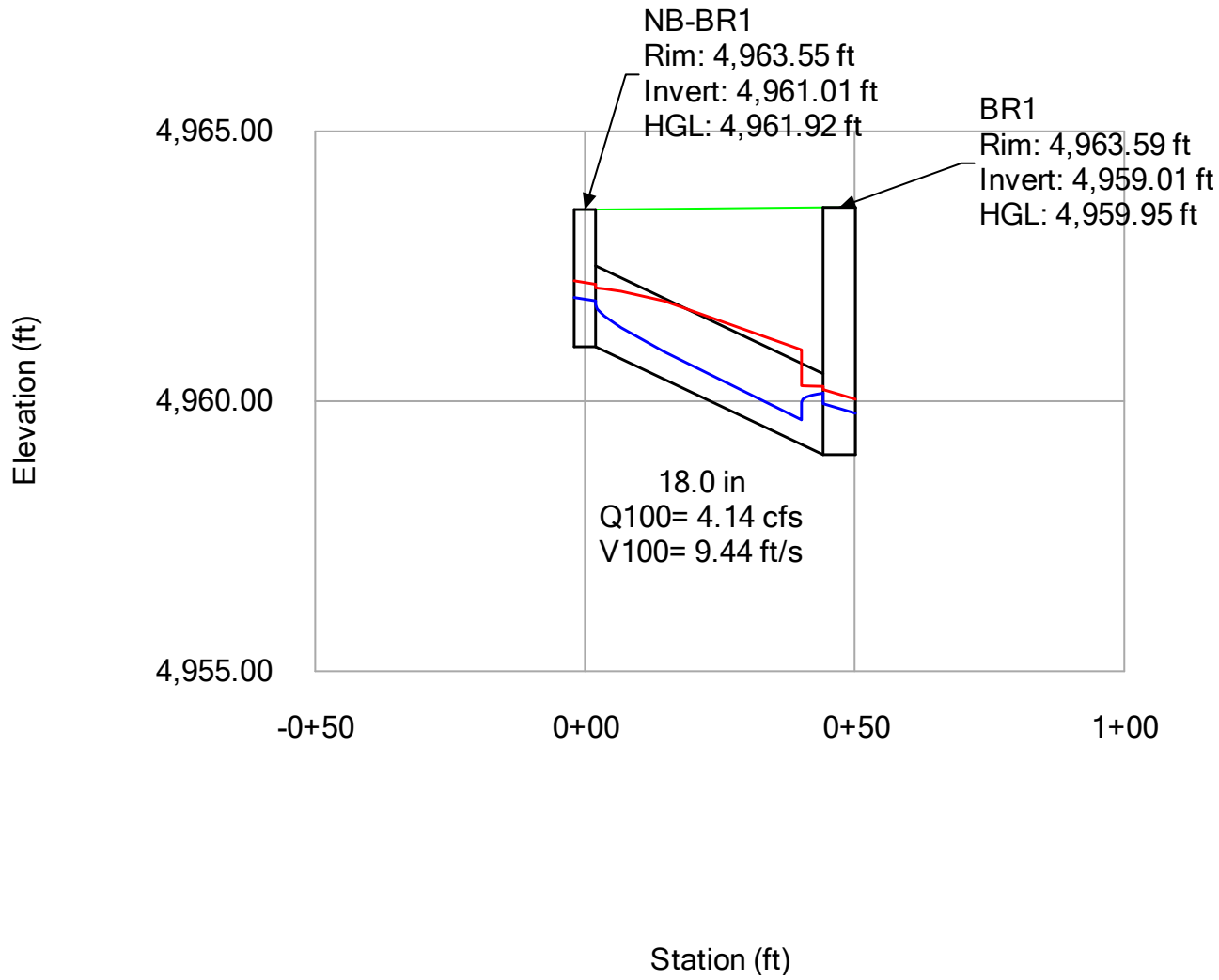
Profile Report

Engineering Profile - Existing Broadway Trunkline (Broadway_Existing_GRID.stsw)



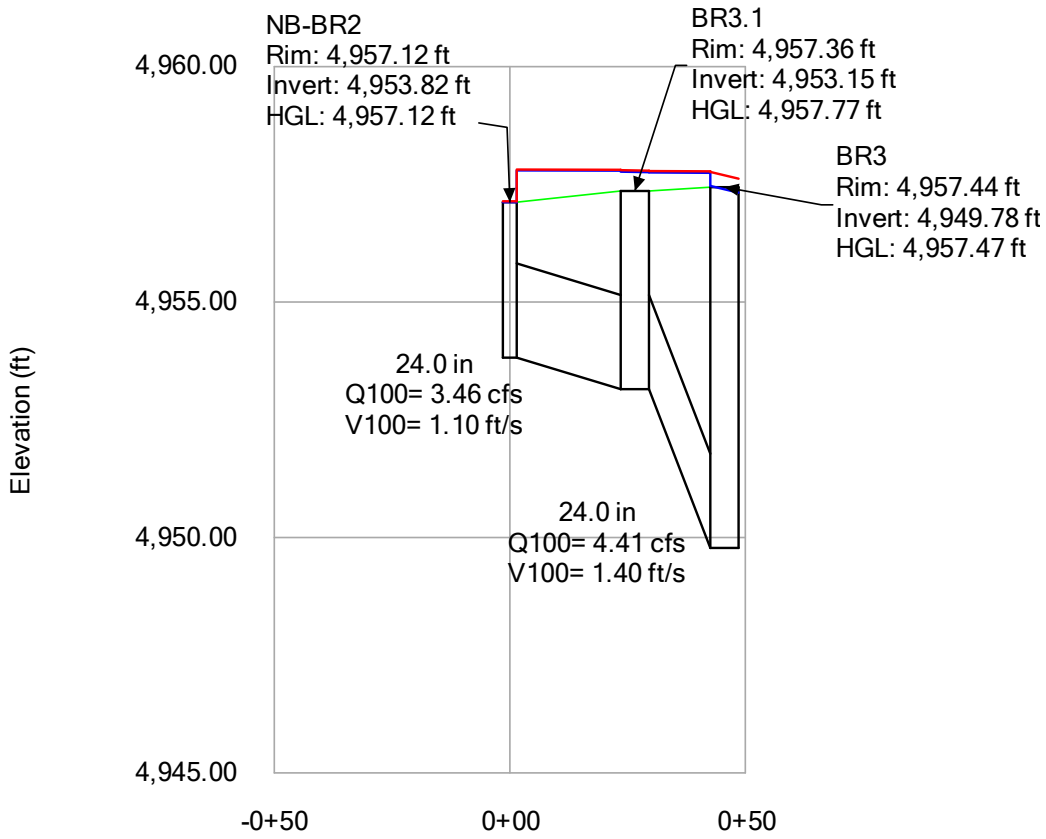
Profile Report

Engineering Profile - Existing NB-BR1 (Broadway_Existing_GRID.stsw)



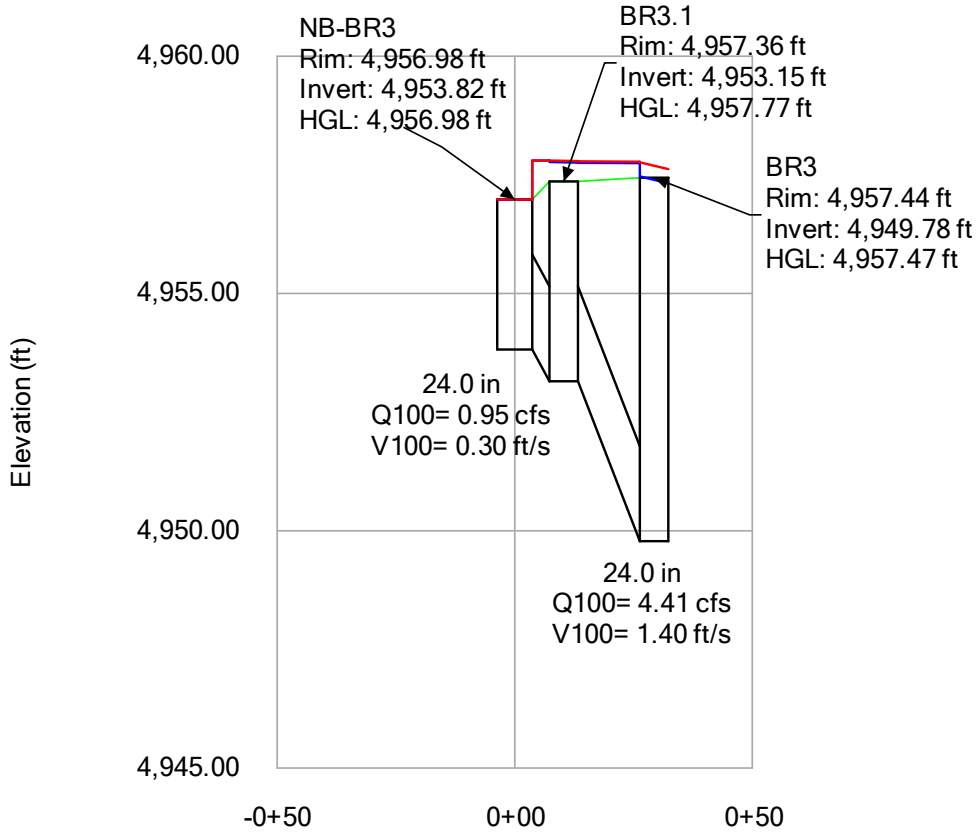
Profile Report

Engineering Profile - Existing NB-BR2 (Broadway_Existing_GRID.stsw)



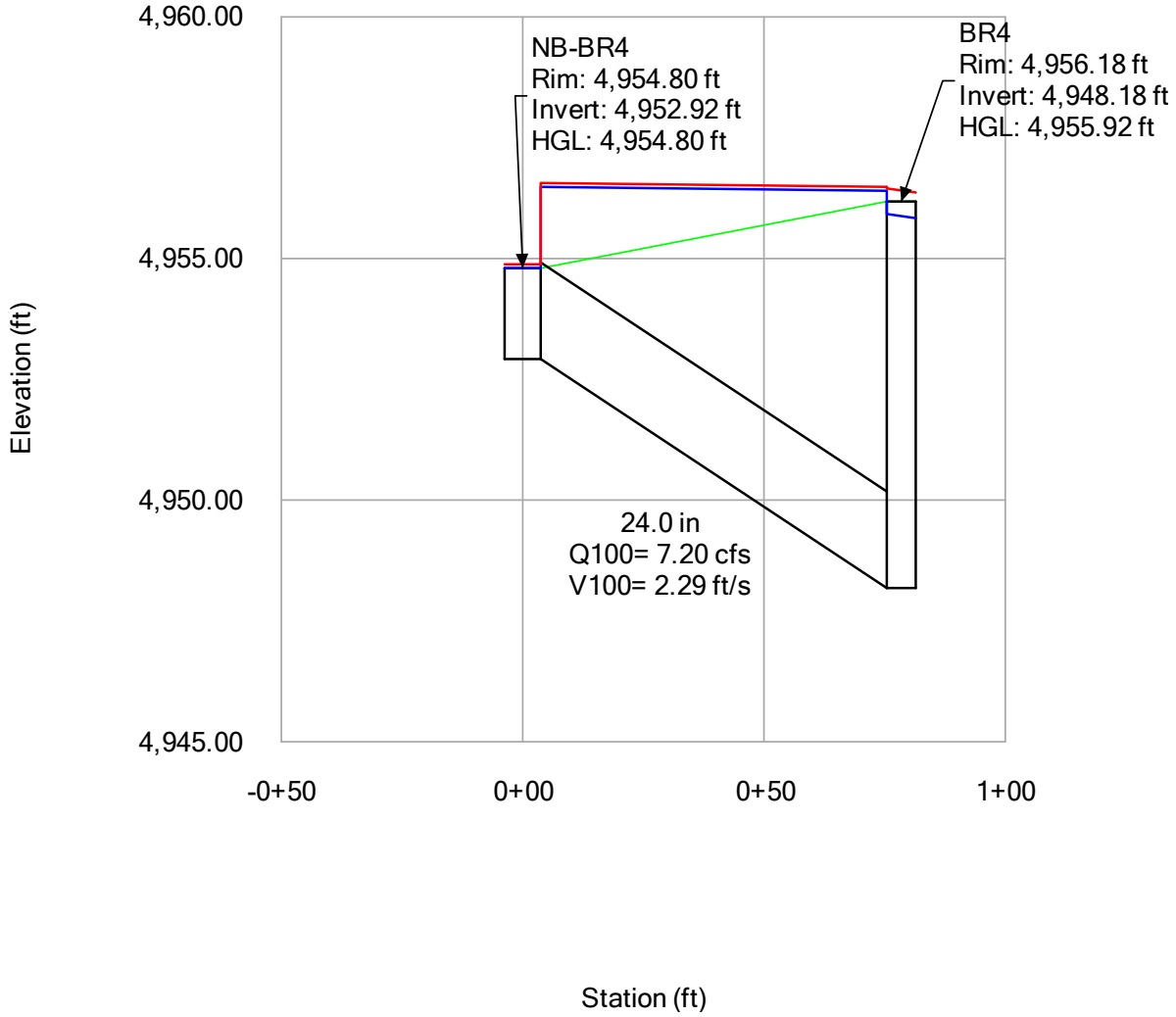
Profile Report

Engineering Profile - Existing NB-BR3 (Broadway_Existing_GRID.stsw)



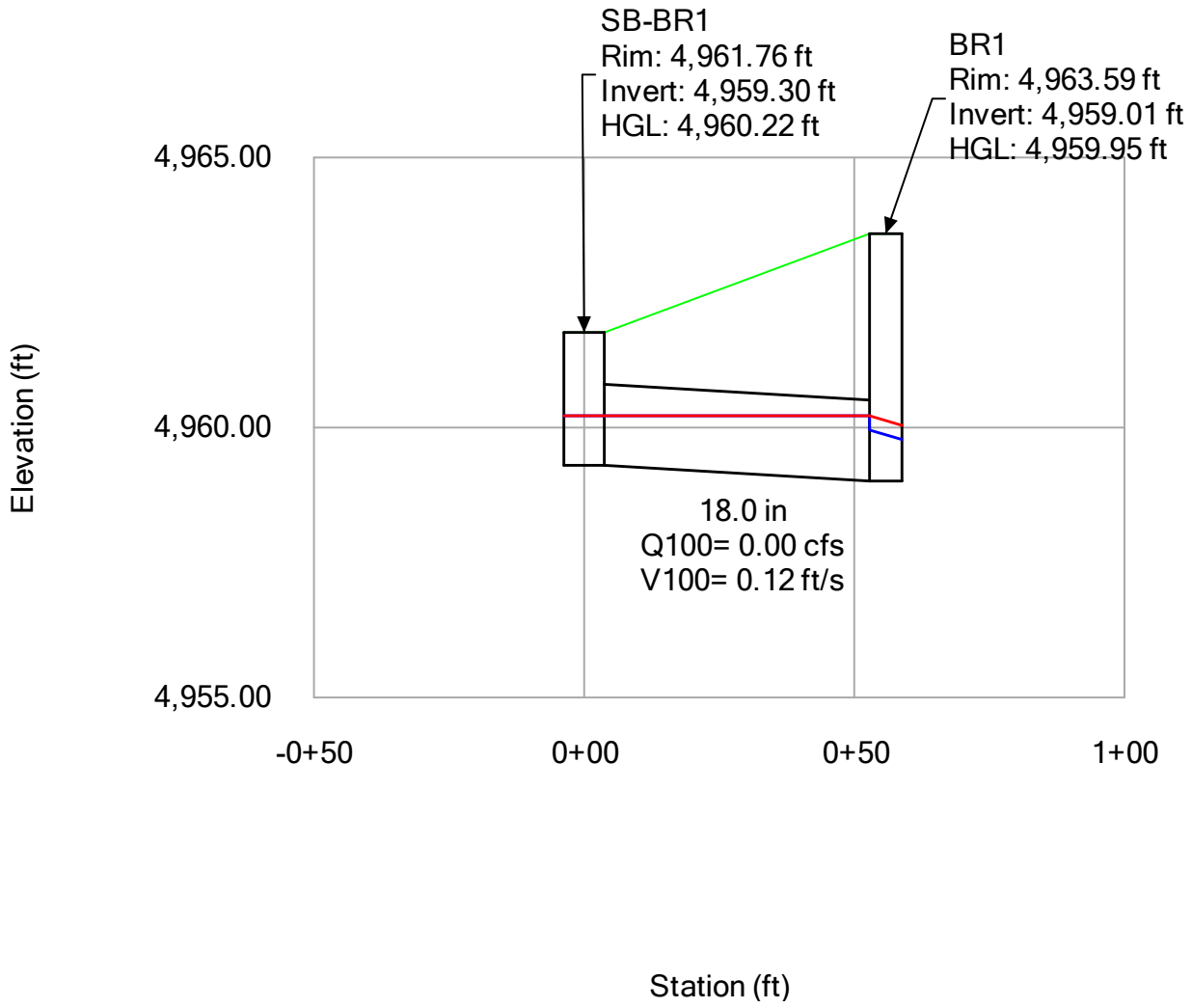
Profile Report

Engineering Profile - Existing NB-BR4 (Broadway_Existing_GRID.stsw)



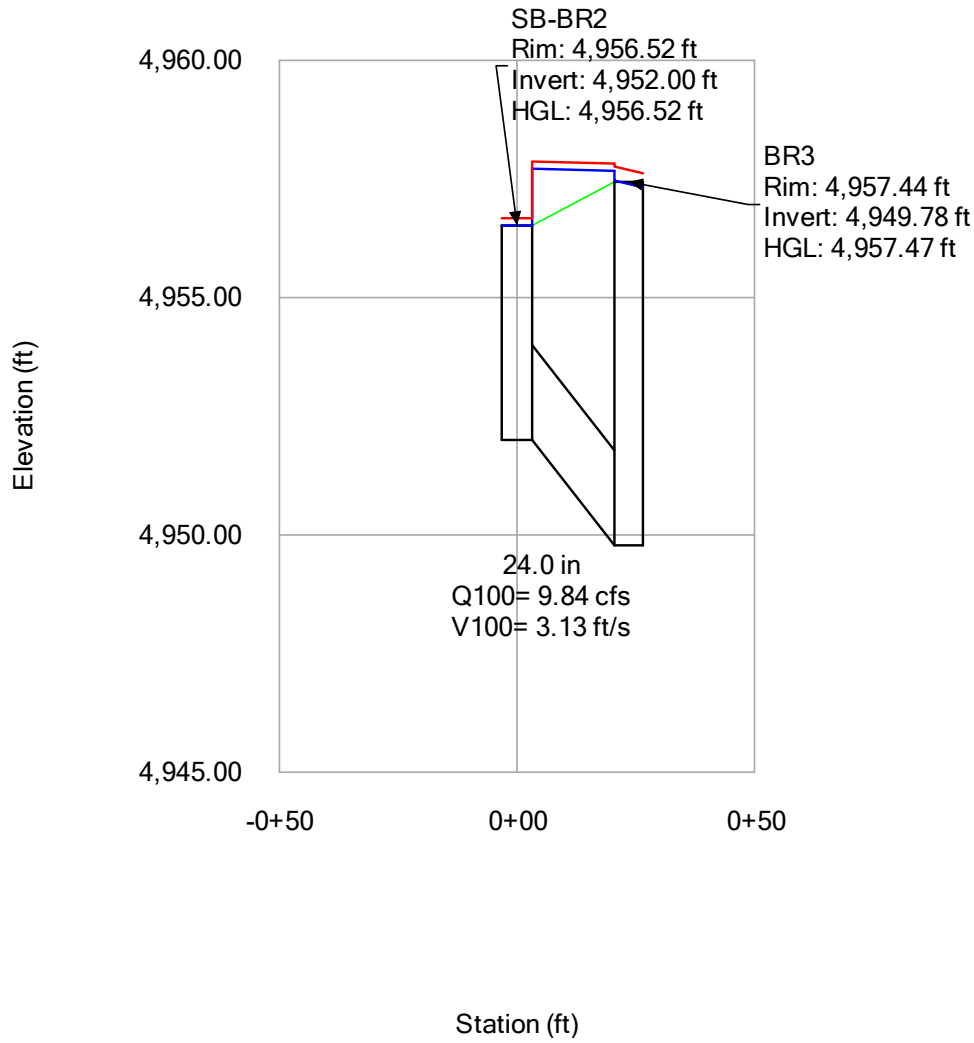
Profile Report

Engineering Profile - Existing SB-BR1 (Broadway_Existing_GRID.stsw)



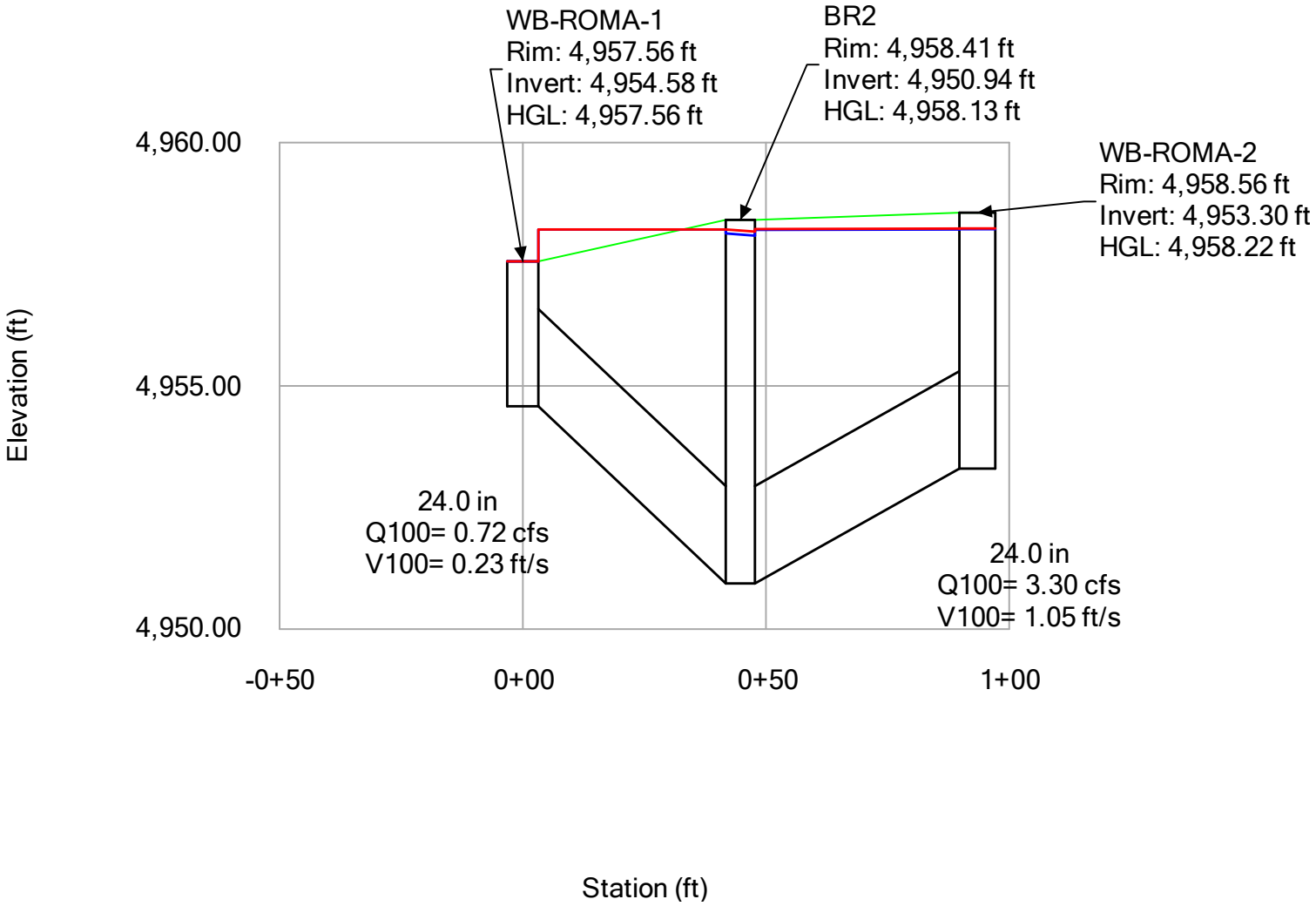
Profile Report

Engineering Profile - Existing SB-BR2 (Broadway_Existing_GRID.stsw)



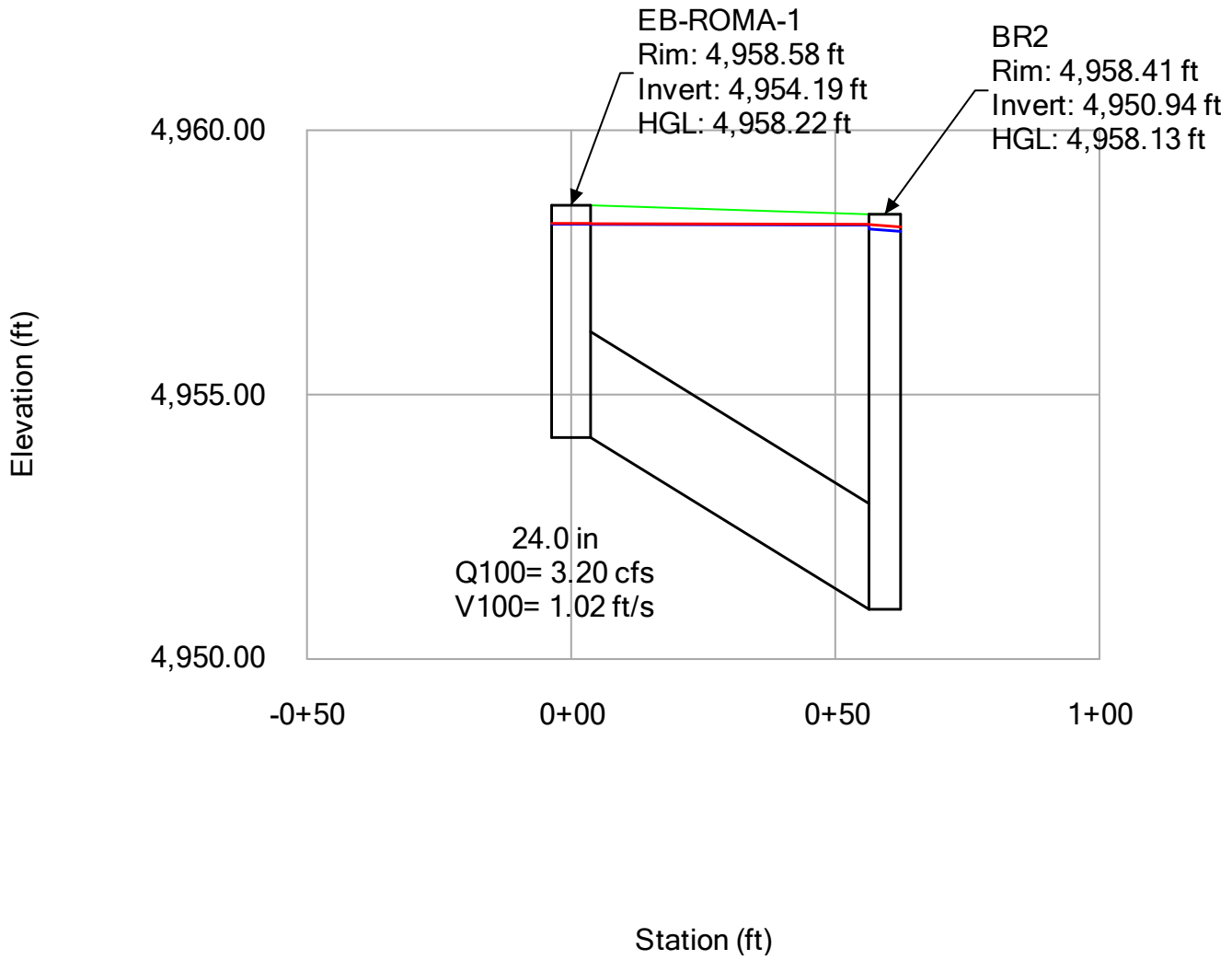
Profile Report

Engineering Profile - Existing WB-ROMA (Broadway_Existing_GRID.stsw)



Profile Report

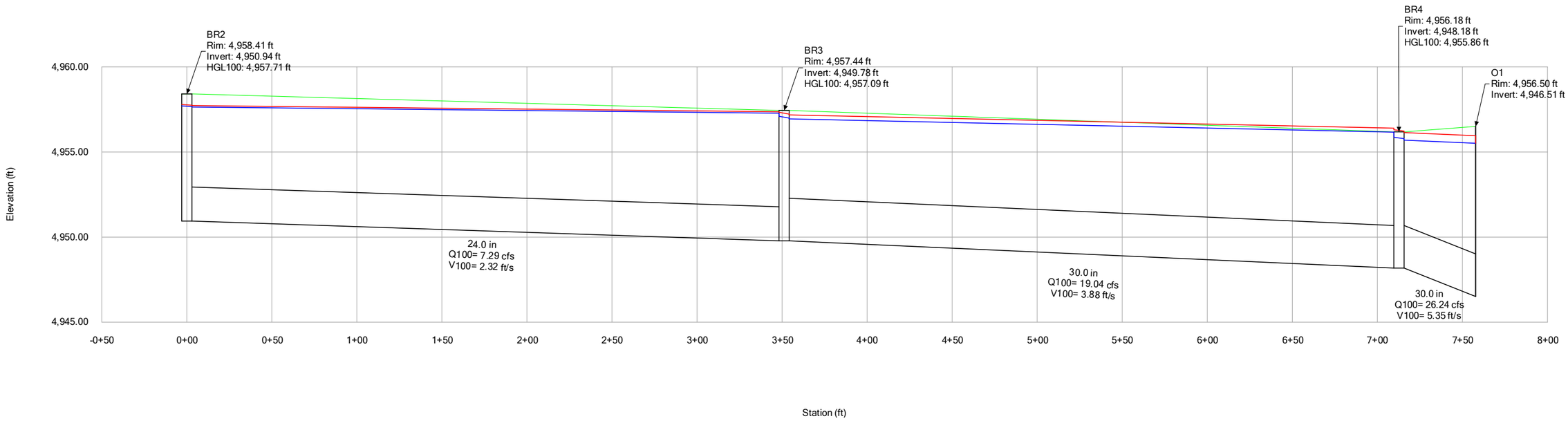
Engineering Profile - Existing EB-ROMA (Broadway_Existing_GRID.stsw)



APPENDIX

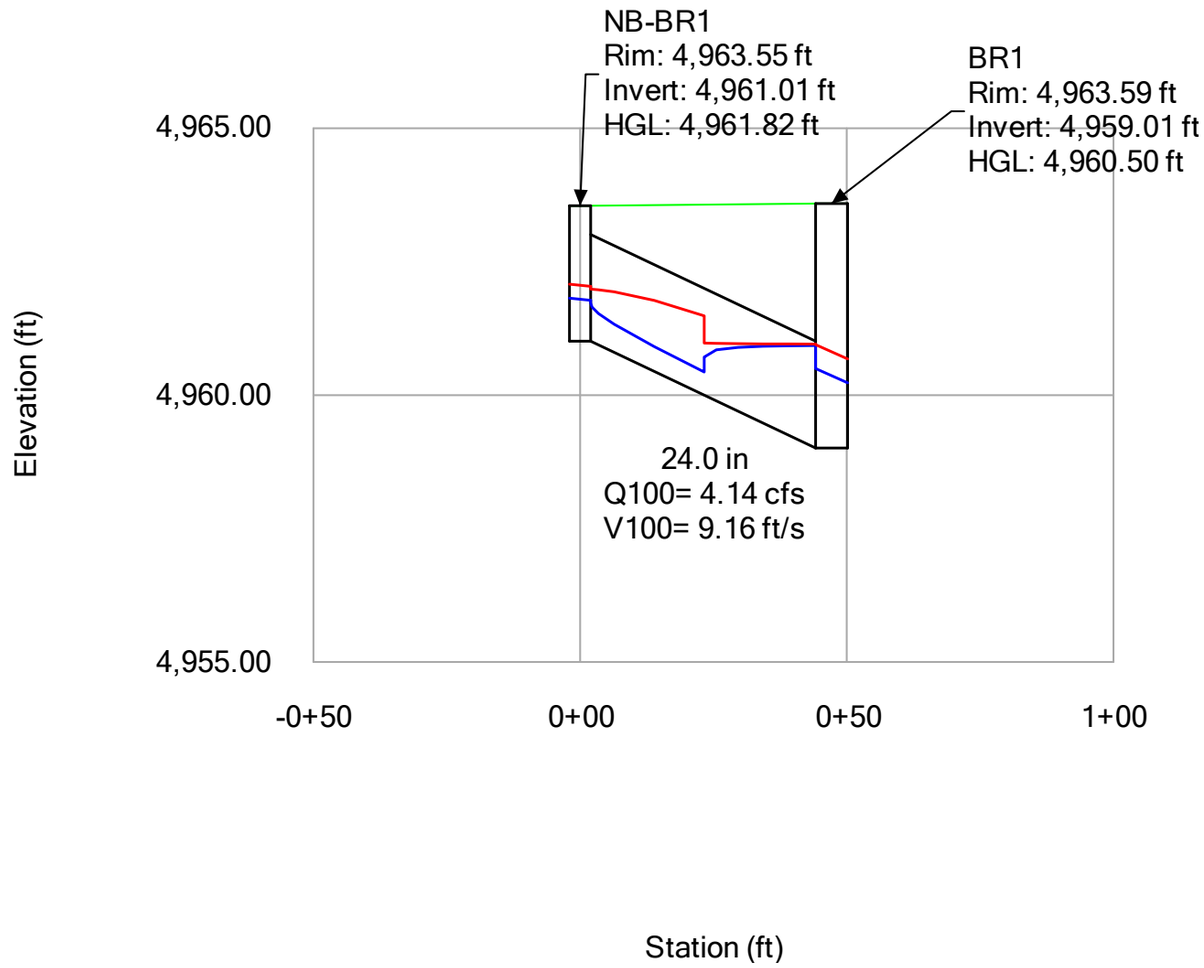
A.2 PROPOSED PROFILES

Profile Report
Engineering Profile - Broadway Trunkline Proposed (Broadway_Proposed_Grid.stsw)



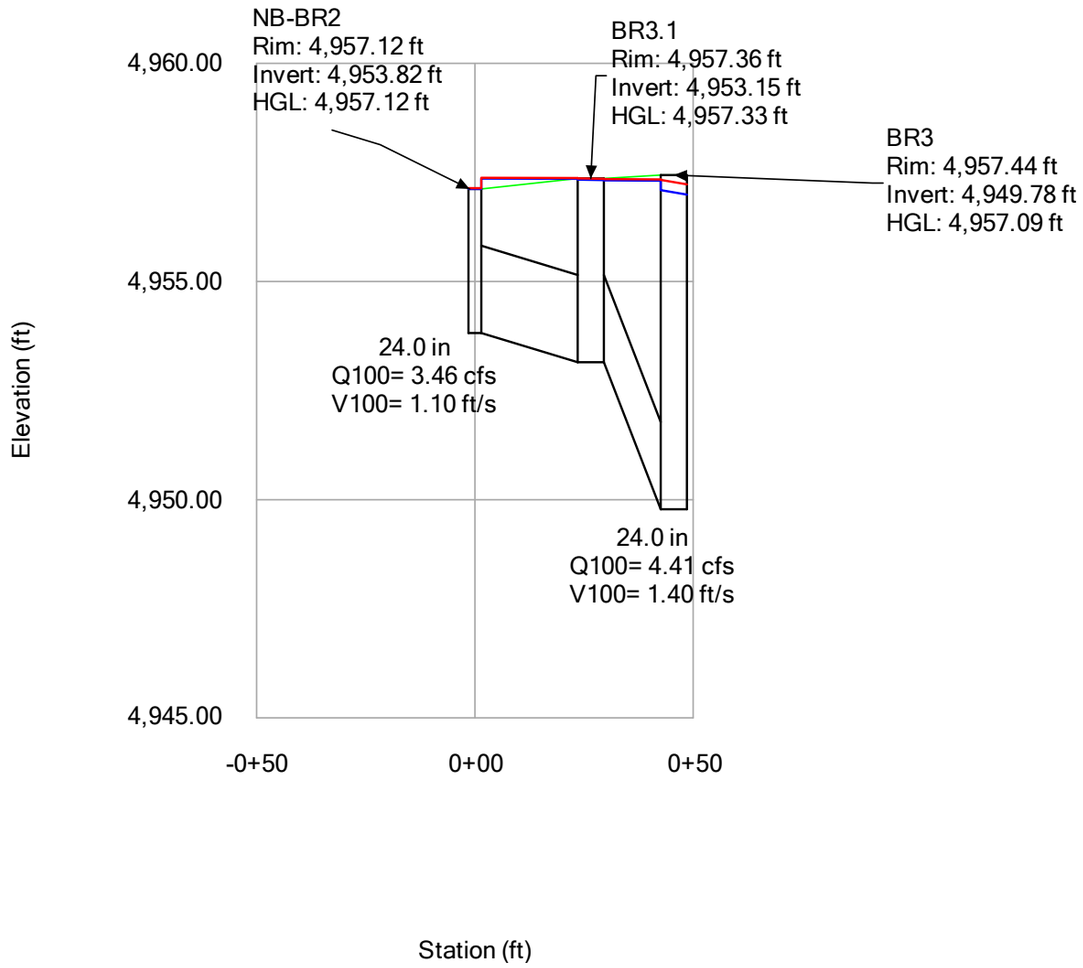
Profile Report

Engineering Profile - NB-BR1 (Broadway_Proposed_Grid.stsw)



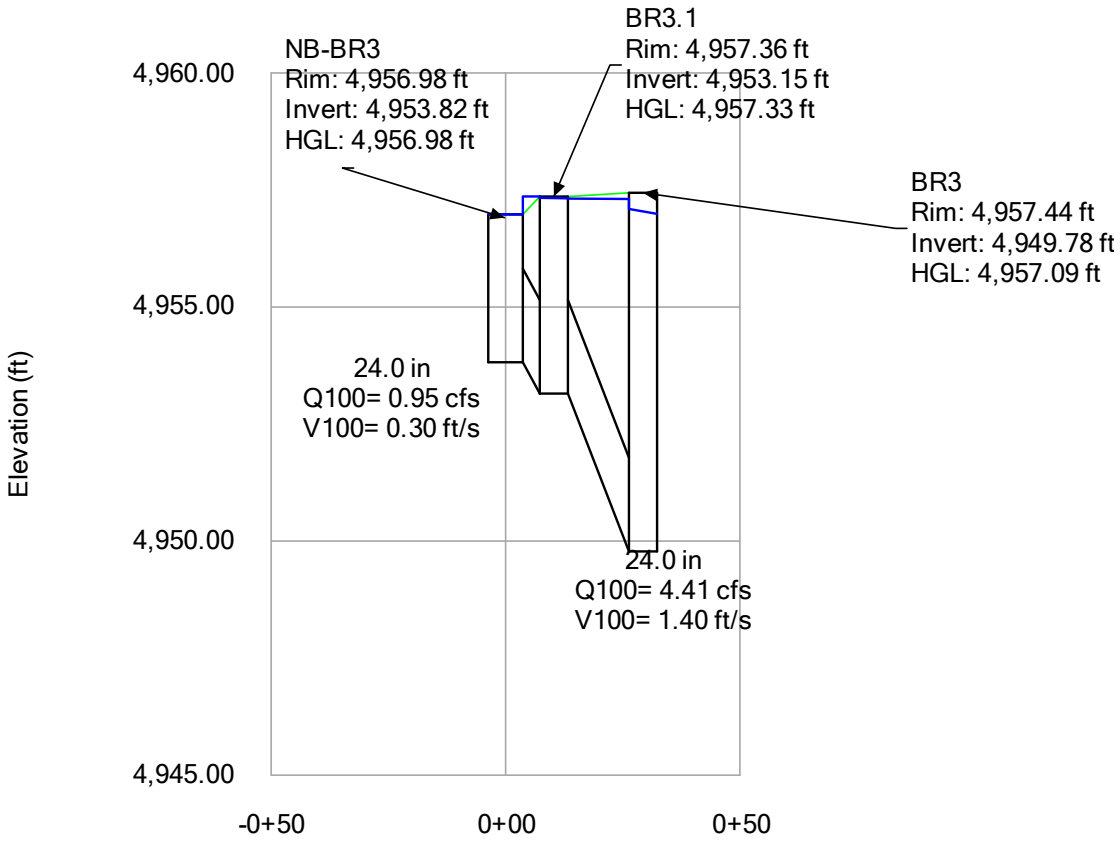
Profile Report

Engineering Profile - NB-BR2 (Broadway_Proposed_Grid.stsw)



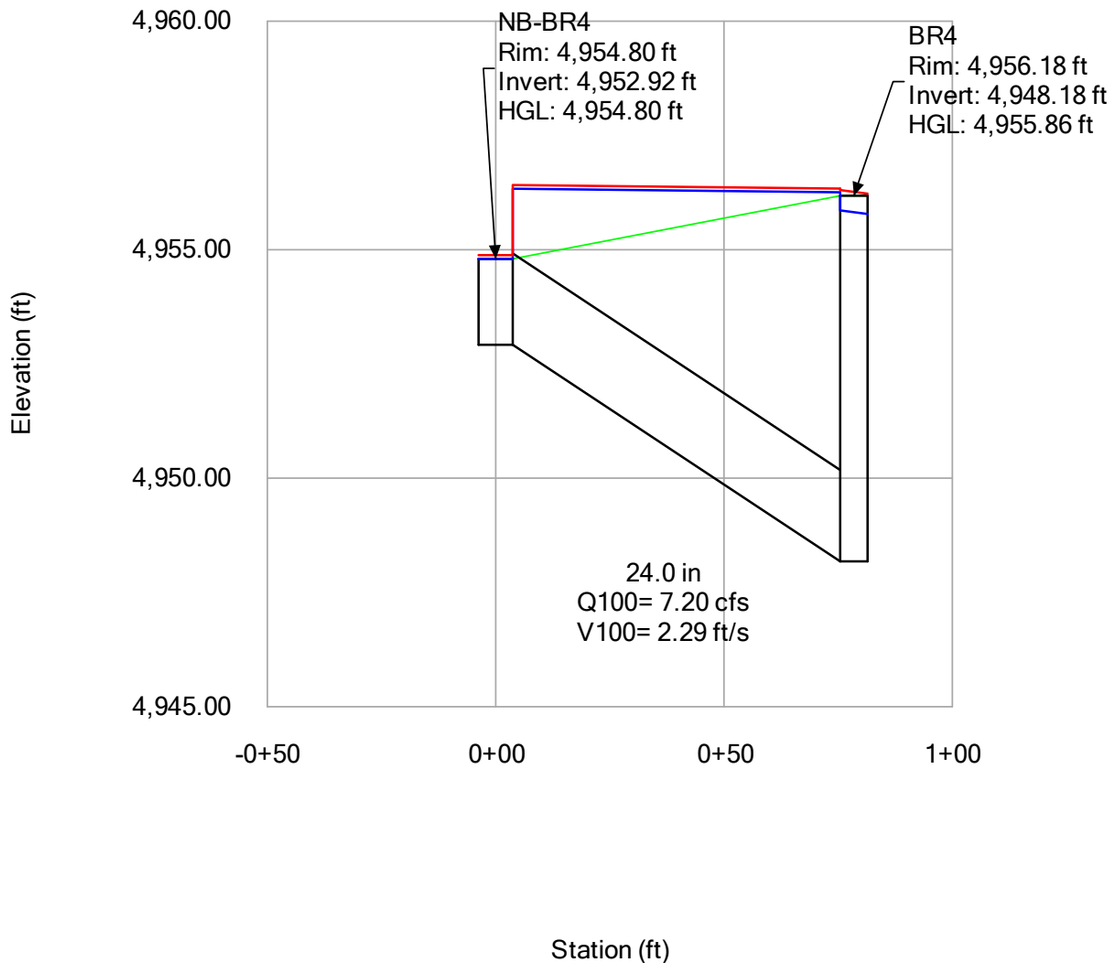
Profile Report

Engineering Profile - NB-BR3 (Broadway_Proposed_Grid.stsw)



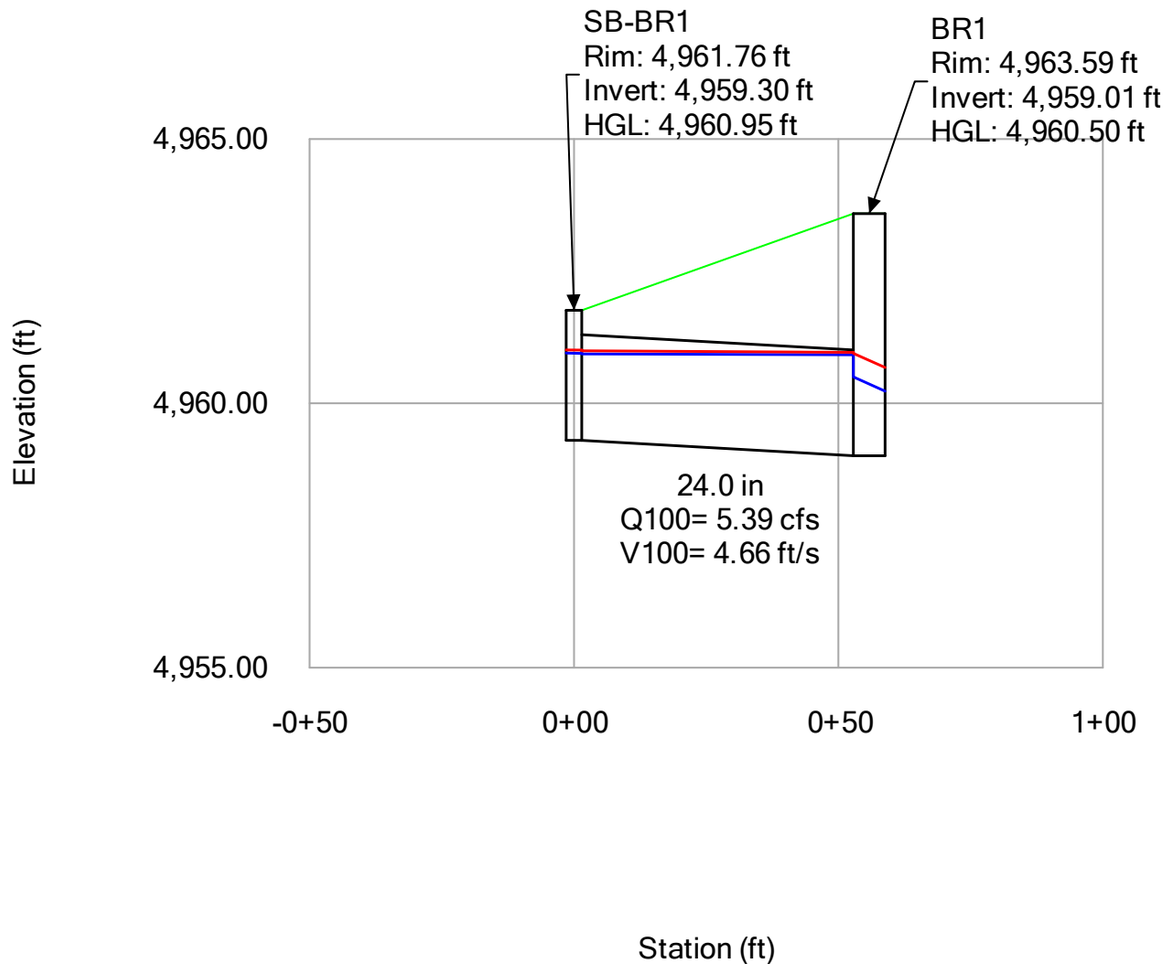
Profile Report

Engineering Profile - NB-BR4 (Broadway_Proposed_Grid.stsw)



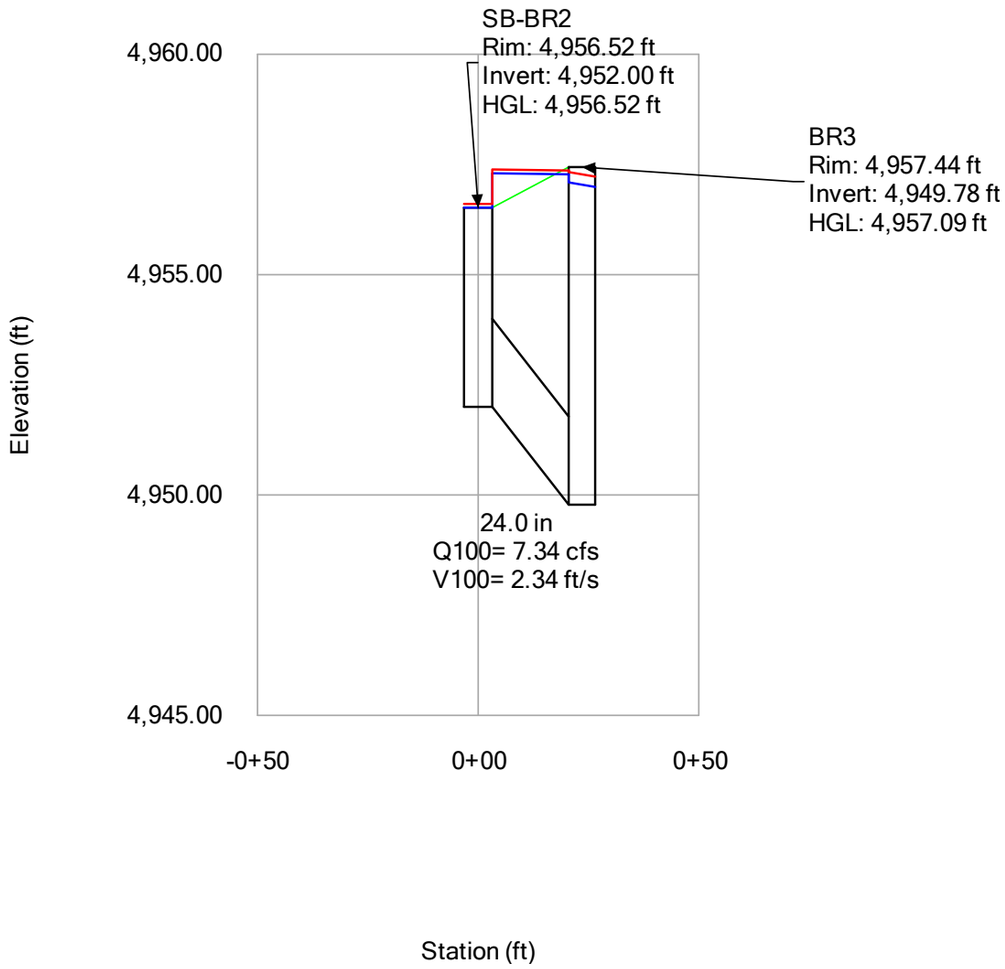
Profile Report

Engineering Profile - SB-BR1 (Broadway_Proposed_Grid.stsw)



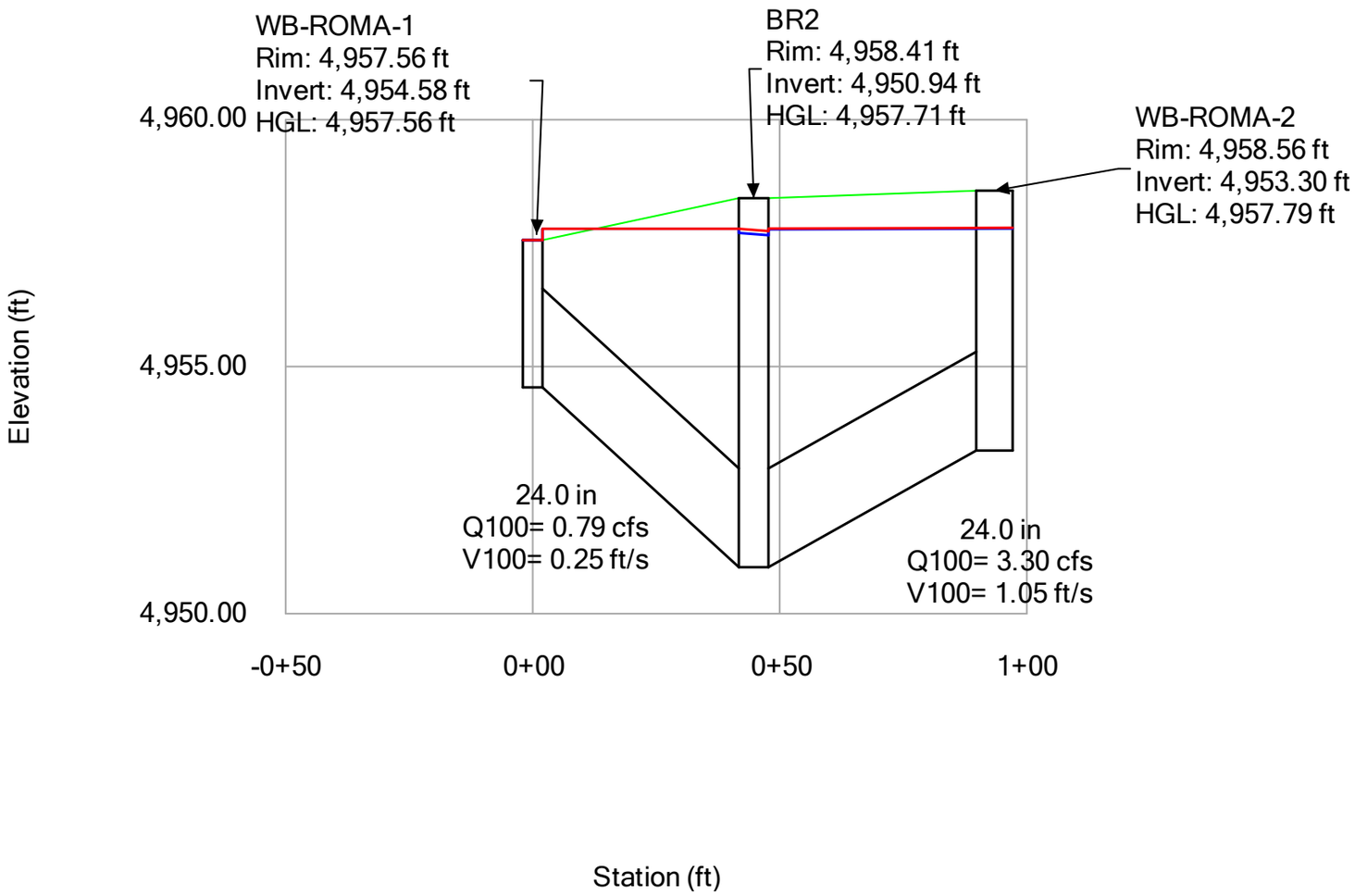
Profile Report

Engineering Profile - SB-BR2 (Broadway_Proposed_Grid.stsw)



Profile Report

Engineering Profile - WB-ROMA (Broadway_Proposed_Grid.stsw)



Profile Report

Engineering Profile - EB-ROMA (Broadway_Proposed_Grid.stsw)