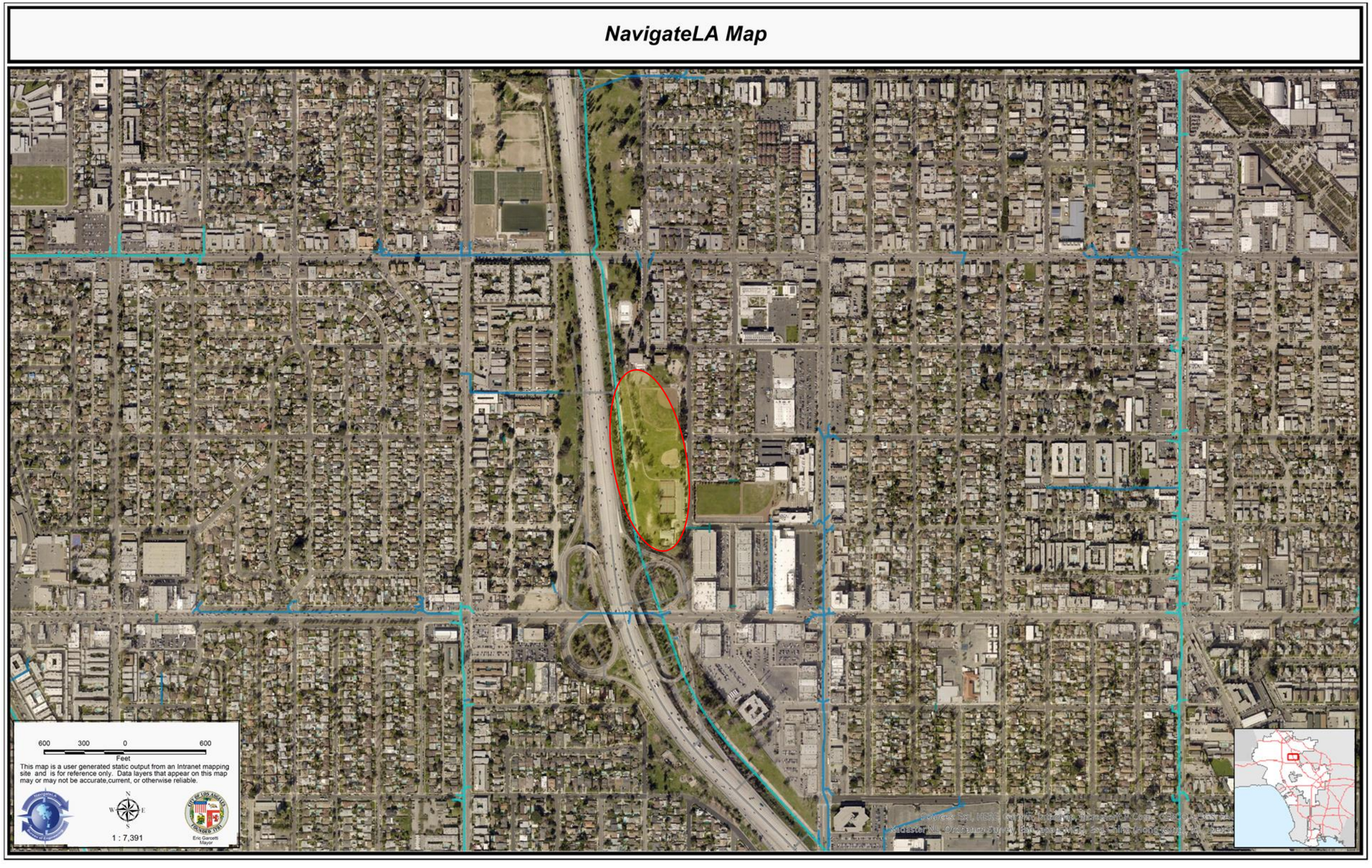
N



Project Location

April 2, 2021

SEITec

Safe, Clean Water Program
Valley Plaza Park Stormwater Project -
StormTunnel Alternative

Single Event Design Storm: 85th P. 24-hr Storm, 162.2cfs Peak Flow, 74 AF Volume
Annual Stormwater Capture: 840 AF/YR (10-YR Modeling Average)

Proposed System	SEITec Valley Plaza Park Stormwater Project **StormTunnel Alternative**	MM/DD/YY / REMARKS 1 __/__/__ ... 2 __/__/__ ... 3 __/__/__ ... 4 __/__/__ ... 5 __/__/__ ...	01 A

INDEX OF DRAWINGS

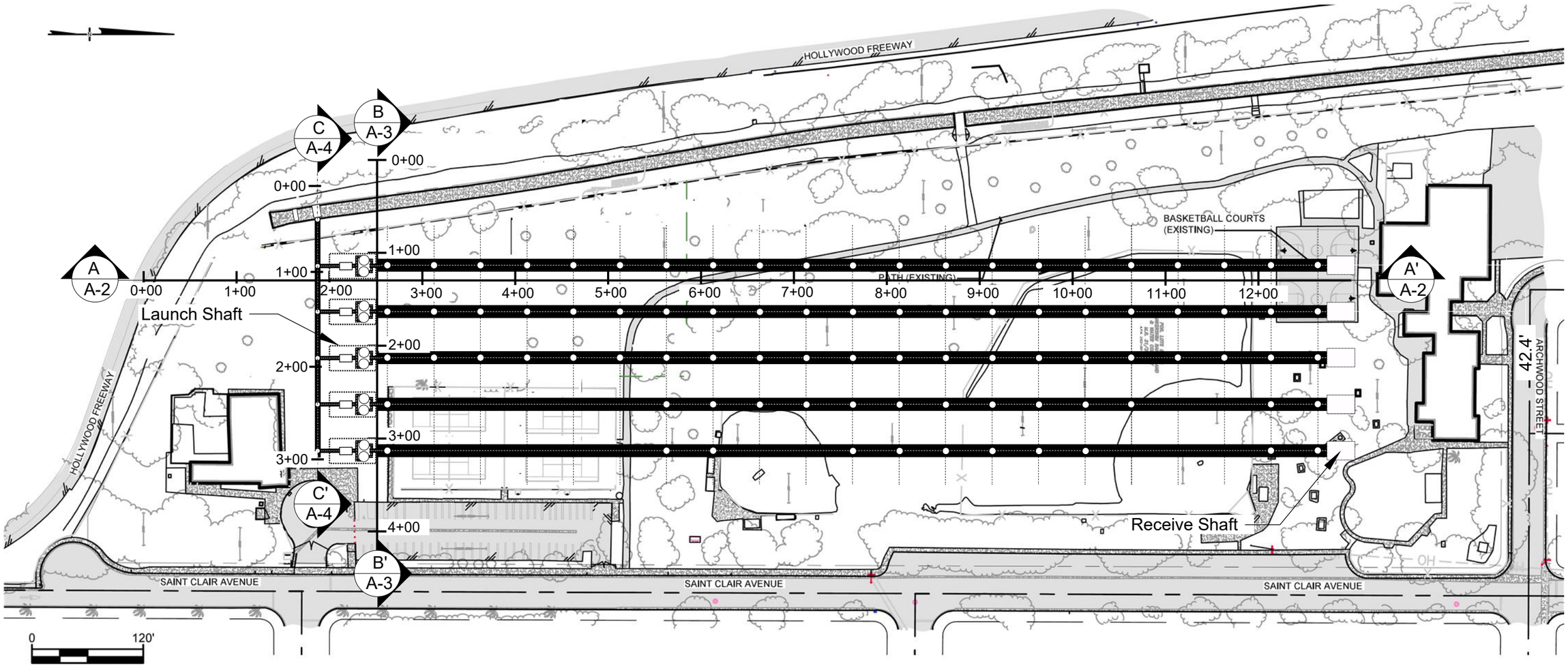
A1 Plan
A2 Profile
A3 Section
A4 Hydraulic Grade Line
A5 Tunnel Perspective
A6 Tunnel Details
A7 Drywall Details
A8 Treatment System
A9 Diversion Perspective
A10 Diversion Plan and Sections
A11 Sediment Filter
A12 Hydrodynamic Separator
A13 Stormwater Modeling Results - 85th P. 24-Hr Storm
A14 Stormwater Modeling Results - Daily and Annual Stormwater Capture

EARTHWORK

Description	Unit	Quantity
Excavation	CY	38,670
Hauling	CY	33,507
Backfill & Compaction	CY	9,149
Gravel Backfill	CY	3,031
Total	**CY**	**84,356**

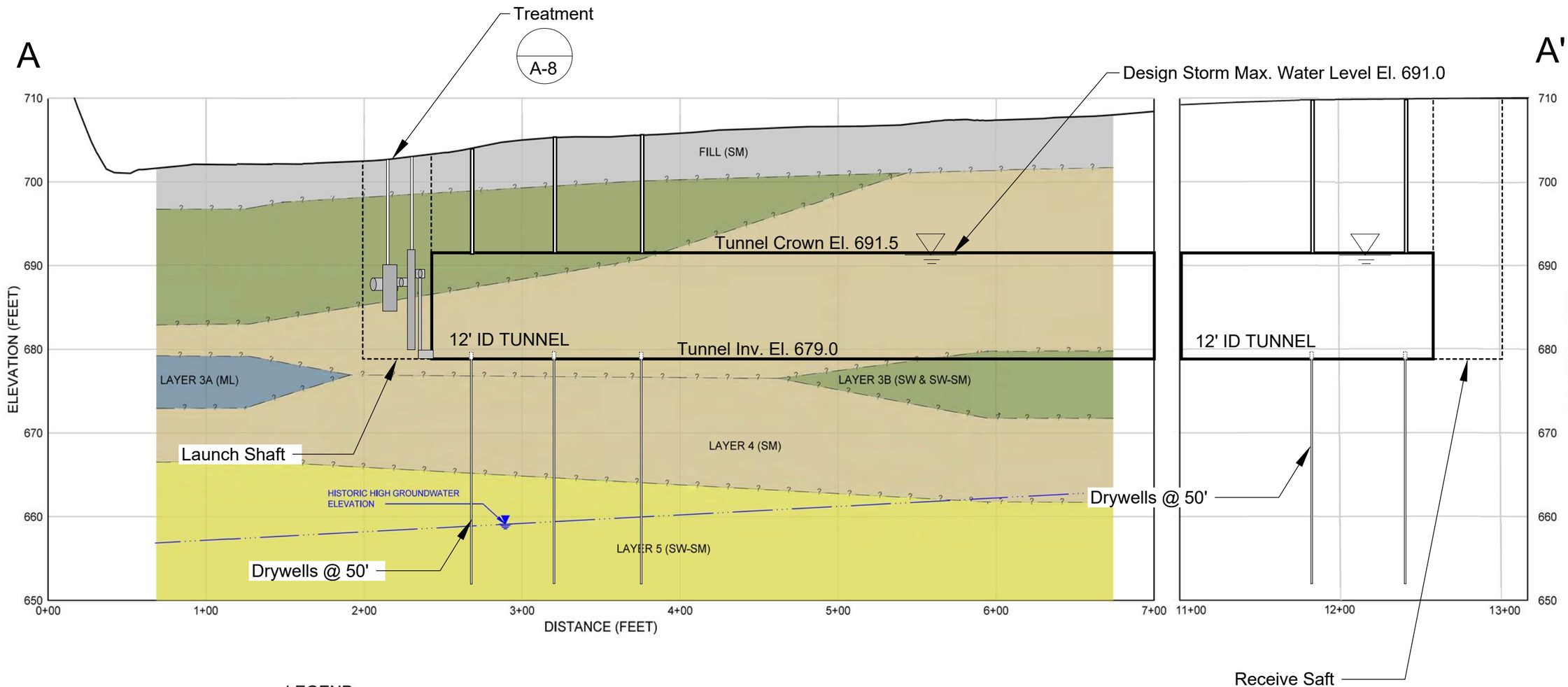
SCOPE OF WORK

Item	Description	Unit	Quantity	Drawings
1	**Tunnel** - 12' ID with segmental concrete liners	LF	5,075	A1, A2, A3, A5, and A6
2	**Drywells** - Embeded in tunnel @ 50-ft spacing with surface access	EA	88	A1, A7
3	**Obermeyer Gate** - 14' W x 3.0' H steel gate operated by inflatable bladder	EA	1	A9
4	**Diversion Channel** - 12' W x 8' L x 2.5' D concrete with trash screen	EA	1	A9, A10
5	**Side Channel Inlet** - 3.0' H x 8' W opening in channel wall with trash screen	EA	1	A9, A10
6	**Transition Structure** - 7' W x 8' L x 7' H concrete box with coned 4' diameter access	EA	1	A9, A10
7	**Manholes** - Five manholes; two 8-ft, and three 6-ft diameter each with coned 4-ft diam access	EA	5	A1, A9
8	**RCP Piping:** 45 LF of 60", 45 LF of 54", 44 LF of 48", and 60 LF of 30"	LF	194	A1
9	**Hydrodynamic Separator -** 10' diam. Hydro Interntaional "Downstream Defender"	EA	10	A12
10	**Sediment Filter -** 8'-W x 14' L Hydro International "Hydro Dry Screen"	EA	5	A11
11	**Park Components -** Restoration to original	LS	1	N/A
12	**Instrumentation and Lighting -** Solar powered flow and level meter at diversion structure, plus level meter for each tunnel	LS	1	N/A



Plan	SEITec Valley Plaza Park Stormwater Project **StormTunnel Alternative**	01 A

	MM/DD/YY	REMARKS
1	__/__/__	...
2	__/__/__	...
3	__/__/__	...
4	__/__/__	...
5	__/__/__	...



LEGEND

- ARTIFICIAL FILL (SM)
- SILTY SAND (SM)
- SAND, SILT (SW, SP-SM, SW-SM & SM)
- SAND, SILT AND GRAVEL (SW-SM)
- SANDY SILT (ML)

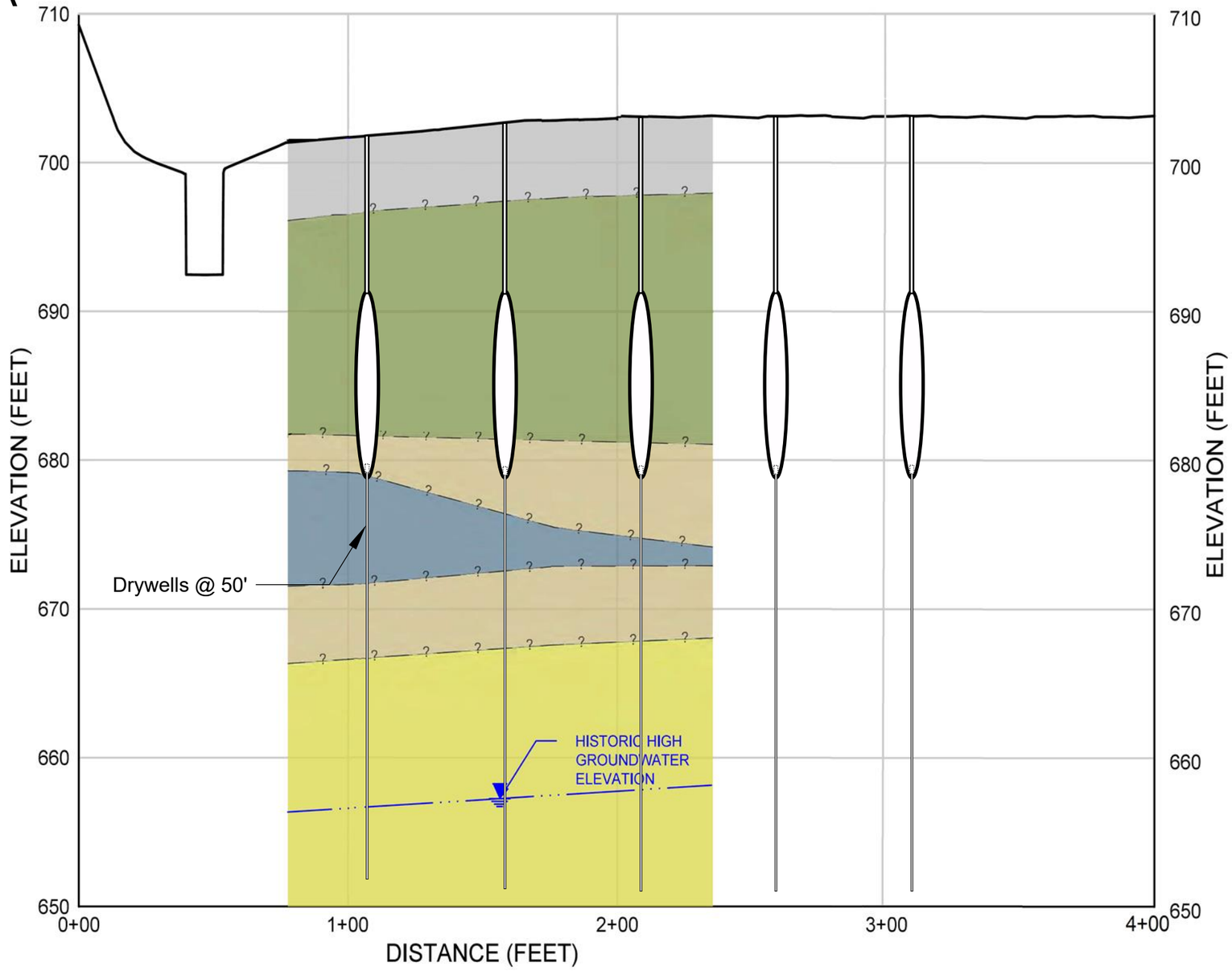
A-A'

Profile	SEITec Valley Plaza Park Stormwater Project **StormTunnel Alternative**		MM/DD/YY	REMARKS	02 A
		1	__/__/__	...	
		2	__/__/__	...	
		3	__/__/__	...	
		4	__/__/__	...	
		5	__/__/__	...	

A

B

B'

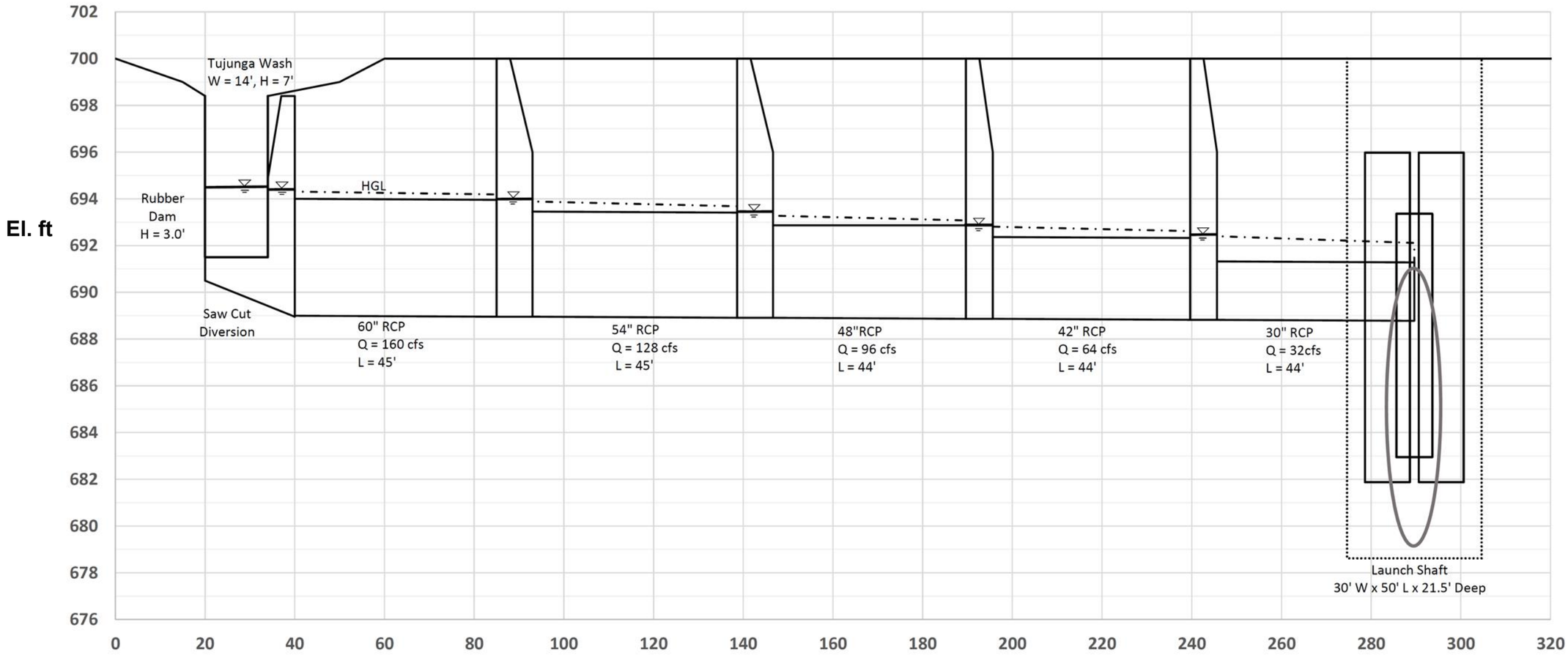


LEGEND

- ARTIFICIAL FILL (SM)
- SILTY SAND (SM)
- SAND, SILT (SW, SP-SM, SW-SM & SM)
- SAND, SILT AND GRAVEL (SW-SM)
- SANDY SILT (ML)

B-B'

Section	SEITec Valley Plaza Park Stormwater Project **StormTunnel Alternative**		MM/DD/YY	REMARKS	03 A
		1	__/__/__	...	
		2	__/__/__	...	
		3	__/__/__	...	
		4	__/__/__	...	
		5	__/__/__	...	



C-C'

HGL	SEITec Valley Plaza Park Stormwater Project **StormTunnel Alternative**	MM/DD/YY / REMARKS 1 __/__/__ ... 2 __/__/__ ... 3 __/__/__ ... 4 __/__/__ ... 5 __/__/__ ...

04

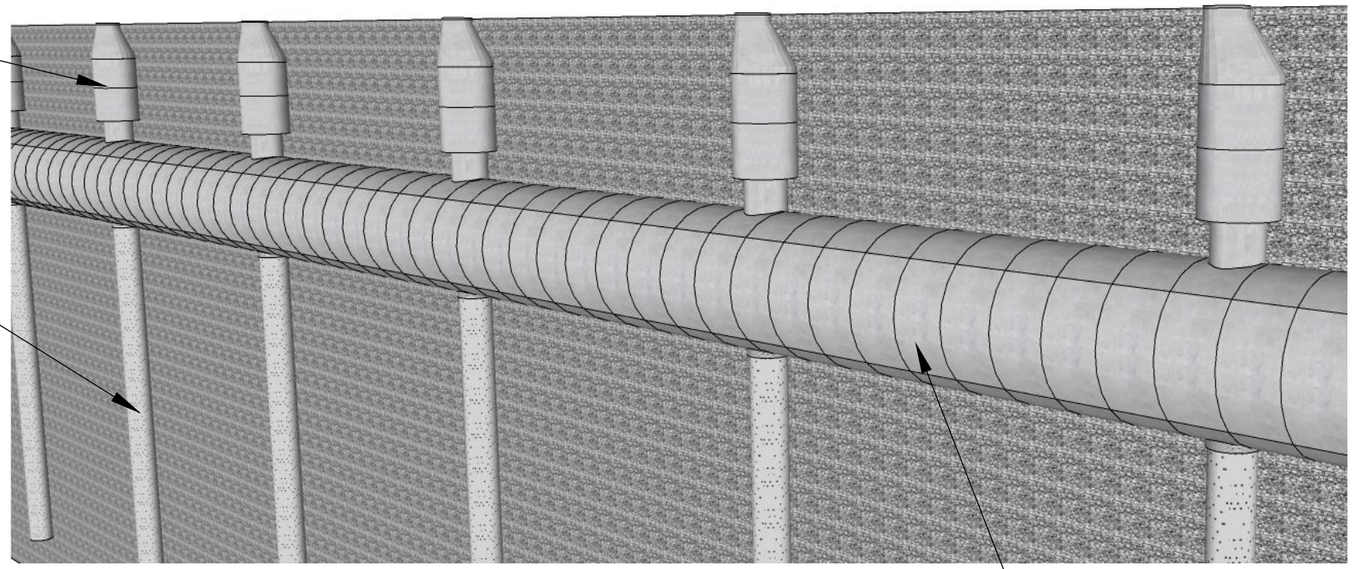
A

60" ID Access

A-7

Dry Well

A-7



12' ID Tunnel

A-6

60" ID Access

A-7

Drywell Inlet

A-7

Perspective

SEITec

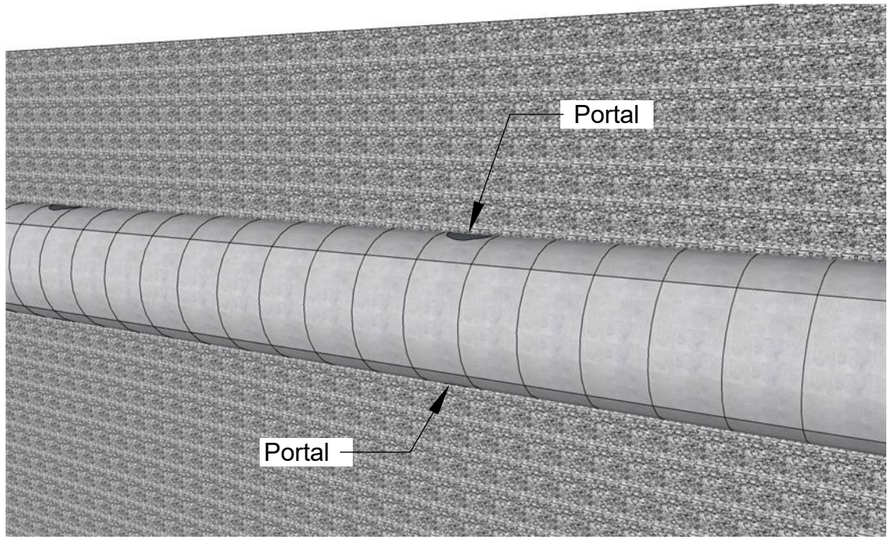
Valley Plaza Park Stormwater Project

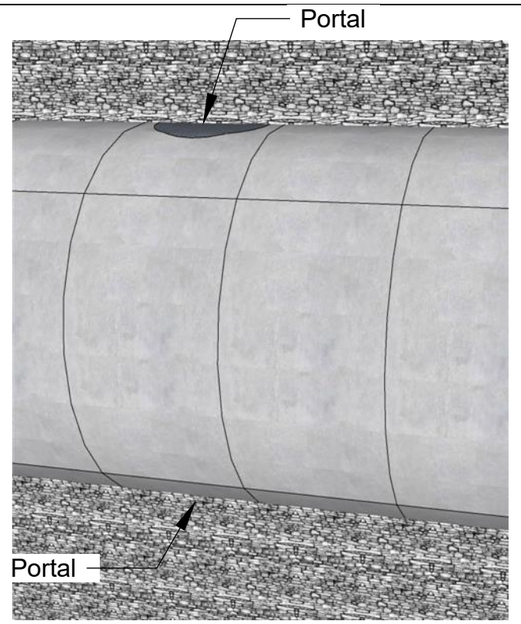
StormTunnel Alternative

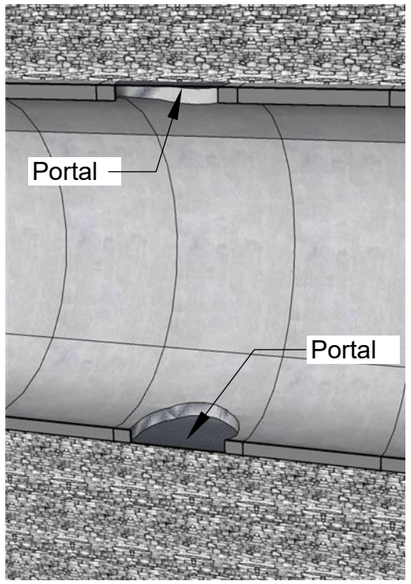
	MM/DD/YY	REMARKS
1	__/__/__	...
2	__/__/__	...
3	__/__/__	...
4	__/__/__	...
5	__/__/__	...

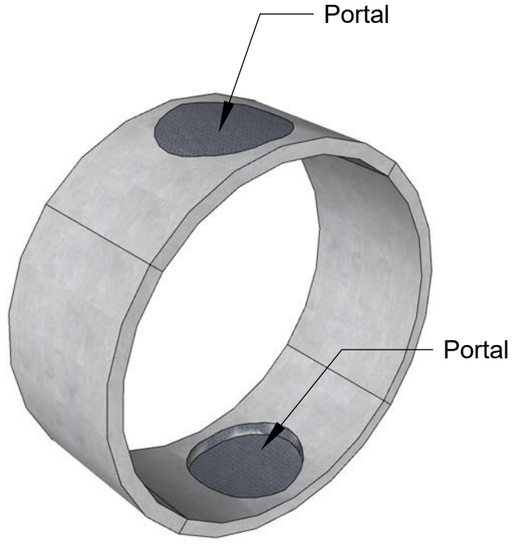
05

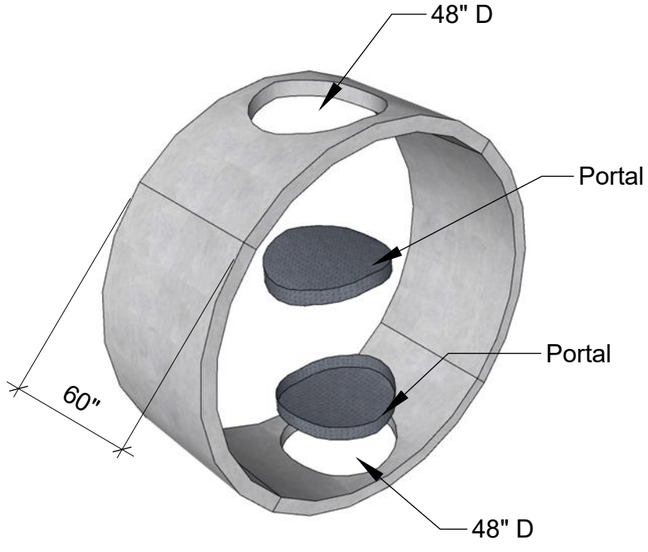
A











Tunnel Details

SEITec

Valley Plaza Park Stormwater Project
StormTunnel Alternative

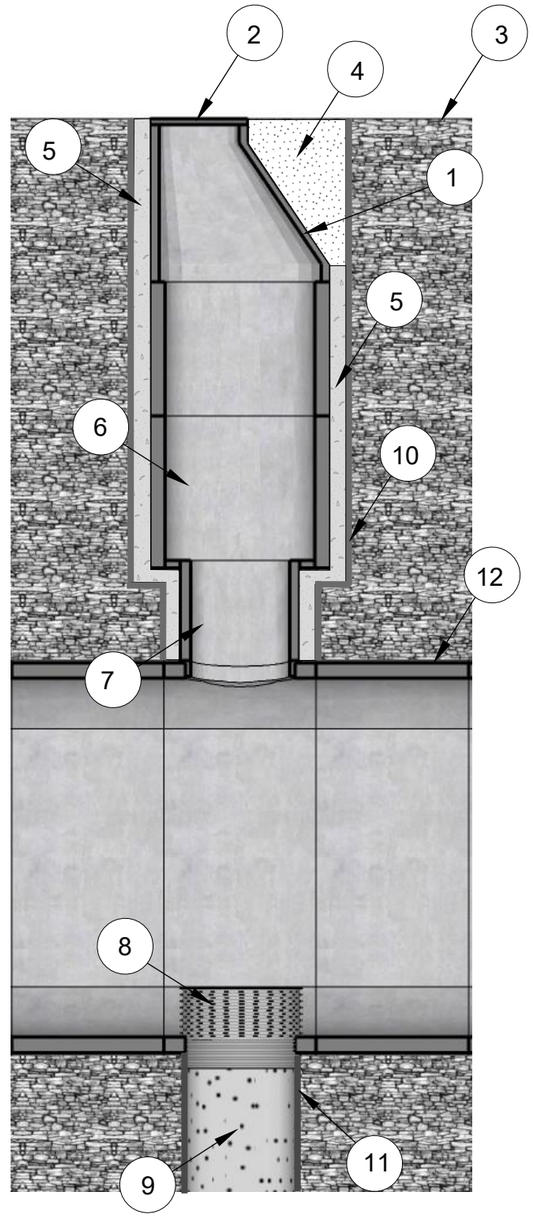
	MM/DD/YY	REMARKS
1	__/__/__	...
2	__/__/__	...
3	__/__/__	...
4	__/__/__	...
5	__/__/__	...

06

A

ITEM NUMBERS

1. 60" ID Precast Manhole Cone
2. Bolted Ring & Cover
3. Final Grade
4. Compacted Backfill
5. Poured Concrete
6. 60" ID Precast Manhole Shaft
7. 48" OD Precast Pipe Connector to Tunnel
8. 48" OD Slotted Corrugated HDPE Pipe, Min. 18" Tall with Filter Fabric Cover
9. Crushed Rock 3/8" and 1-1/2" per Native Soil
10. 72" Diam. Drilled Shaft
11. 48" Diam. Drilled Shaft, 75' Deep
12. Tunnel Liner Segment, 5-ft W, 12-ft ID



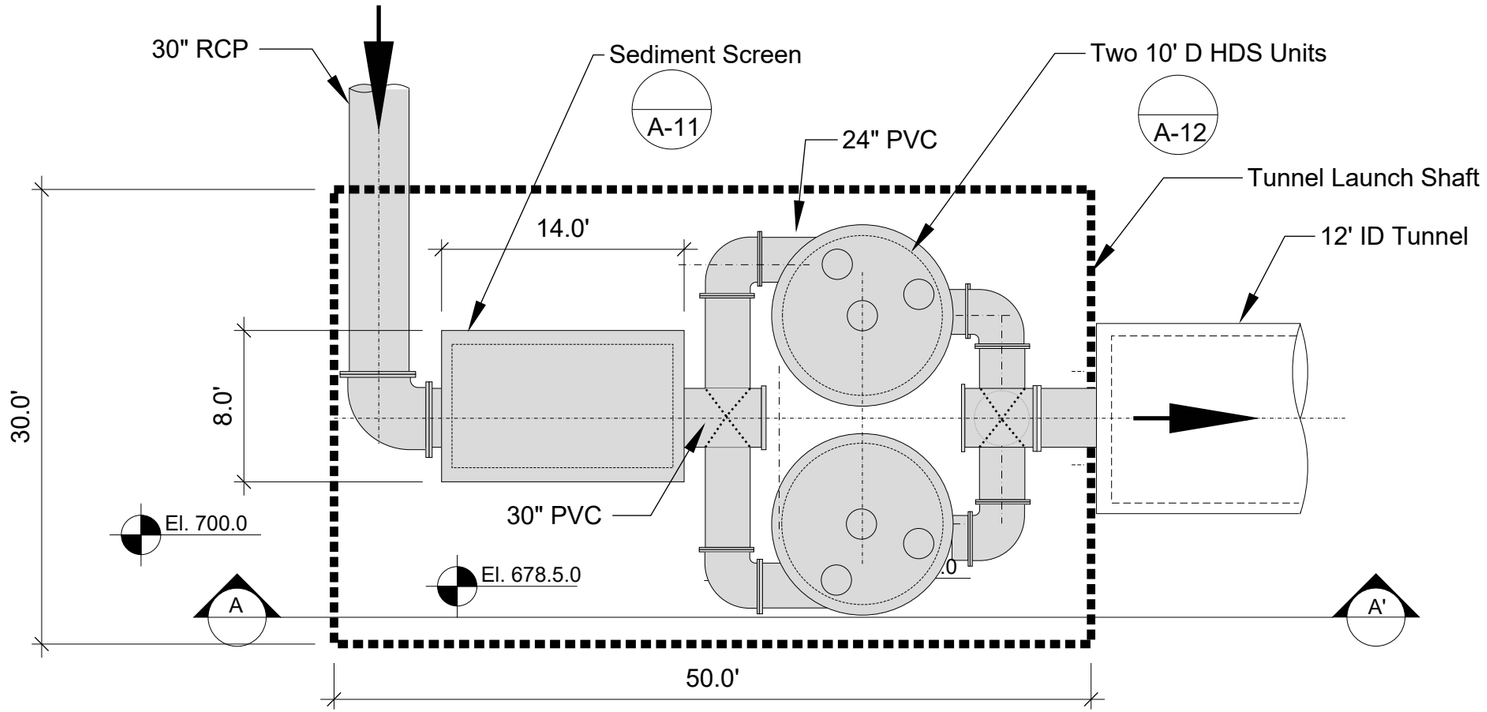
Detail - Drywells

SEITec

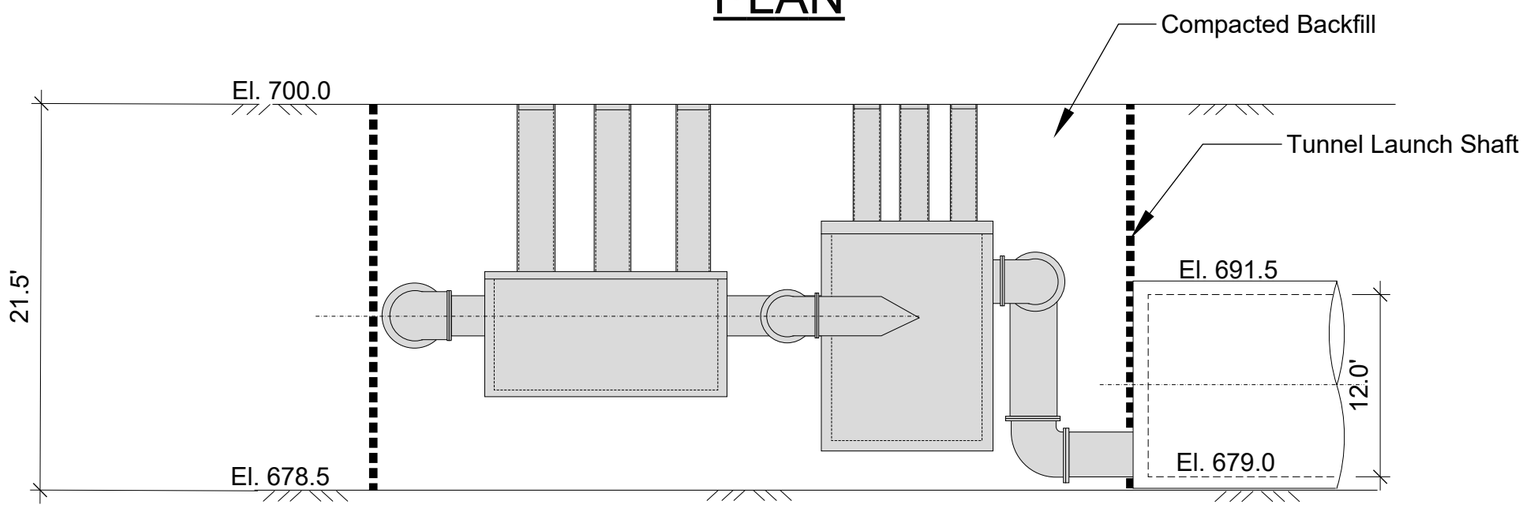
Valley Plaza Park Stormwater Project
StormTunnel Alternative

	MM/DD/YY	REMARKS
1	__/__/__	...
2	__/__/__	...
3	__/__/__	...
4	__/__/__	...
5	__/__/__	...

07
A



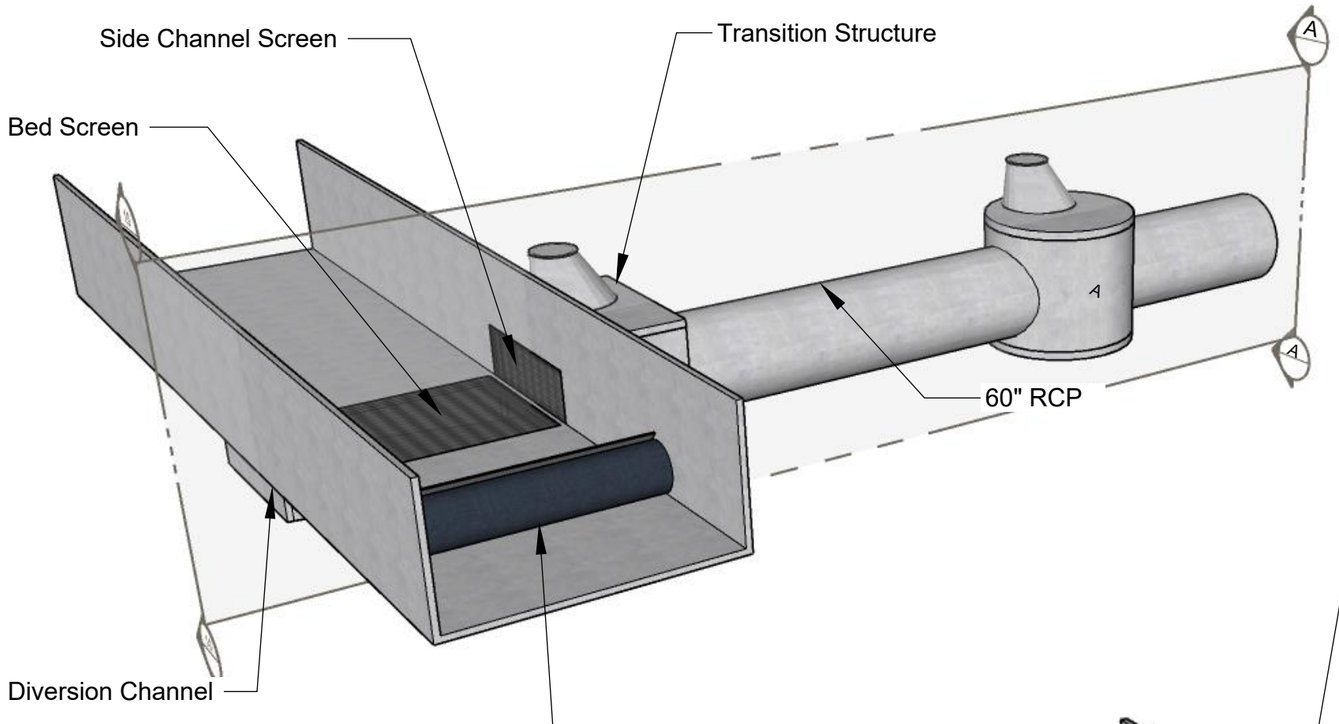
PLAN

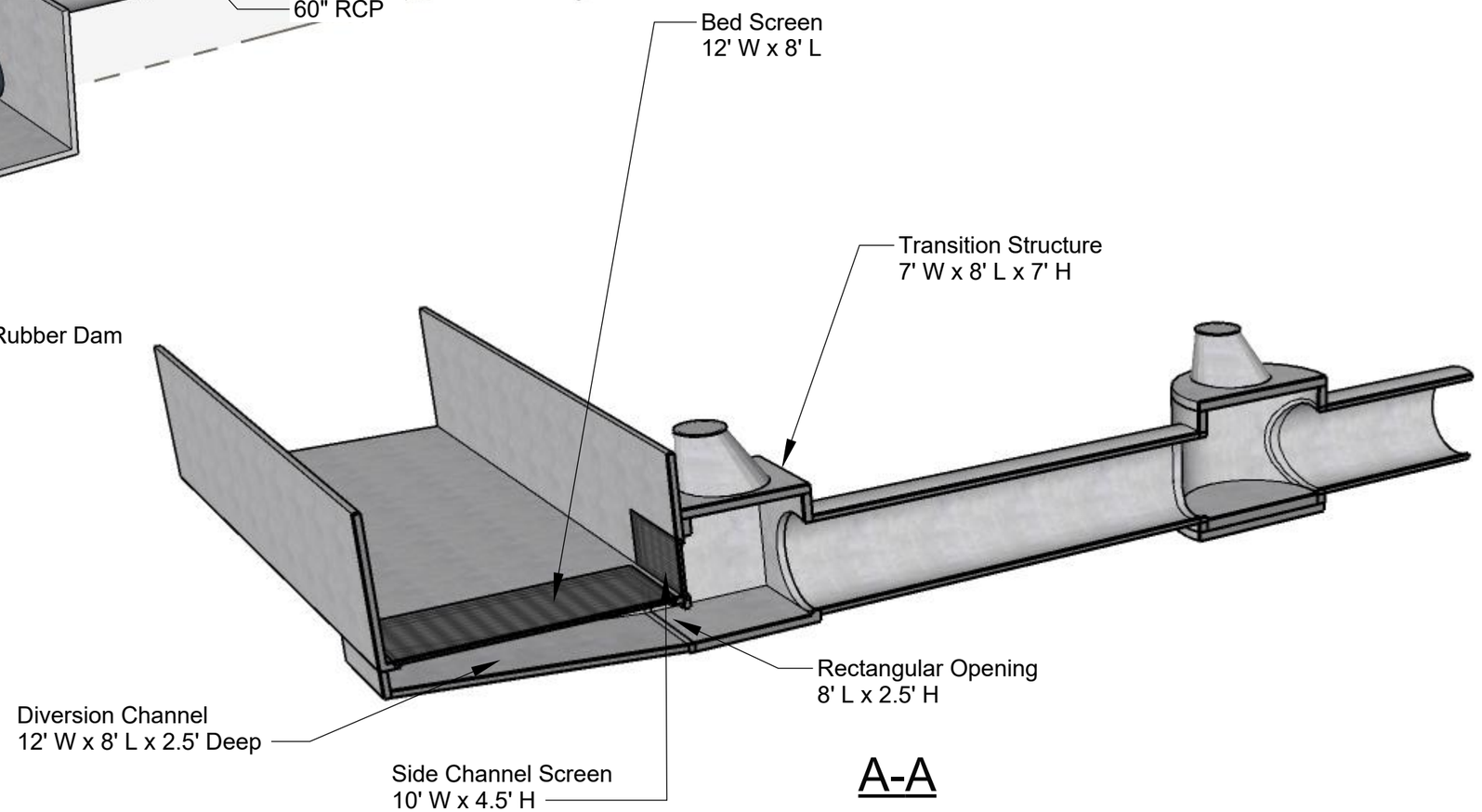


A-A'

Treatment System	SEITec Valley Plaza Park Stormwater Project **StormTunnel Alternative**	08 A

	MM/DD/YY	REMARKS
1	__/__/__	...
2	__/__/__	...
3	__/__/__	...
4	__/__/__	...
5	__/__/__	...



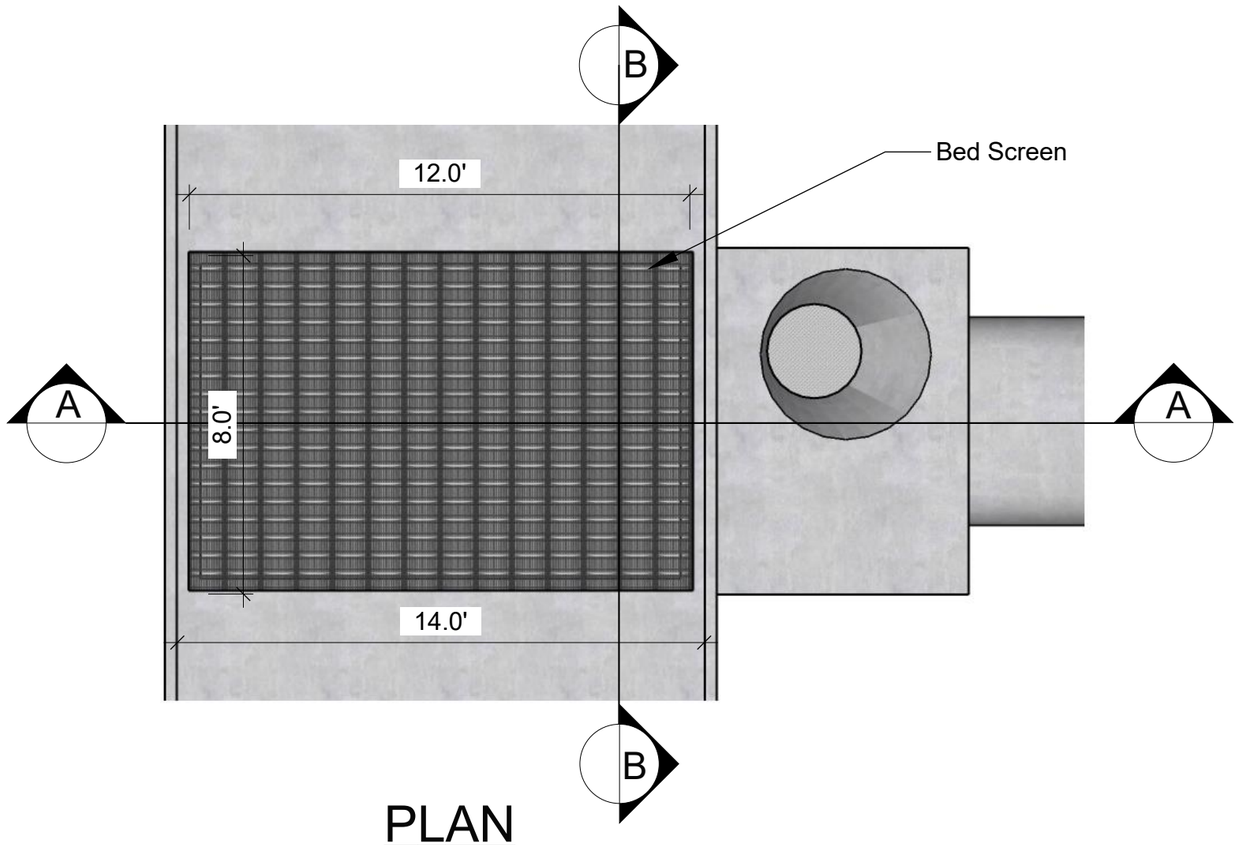


A-A

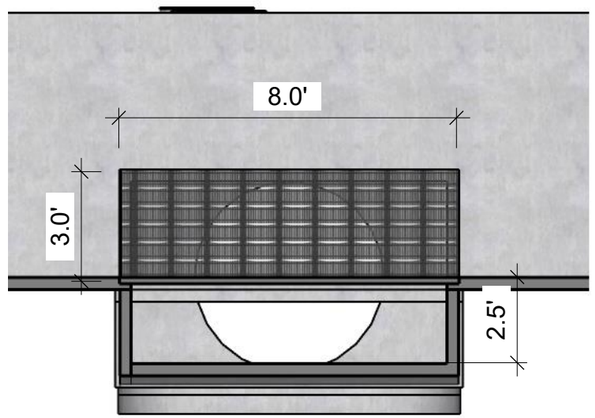
Diversion - Perspective	SEITec Valley Plaza Park Stormwater Project **StormTunnel Alternative**	MM/DD/YY REMARKS 1 __/__/__ ... 2 __/__/__ ... 3 __/__/__ ... 4 __/__/__ ... 5 __/__/__ ...

09

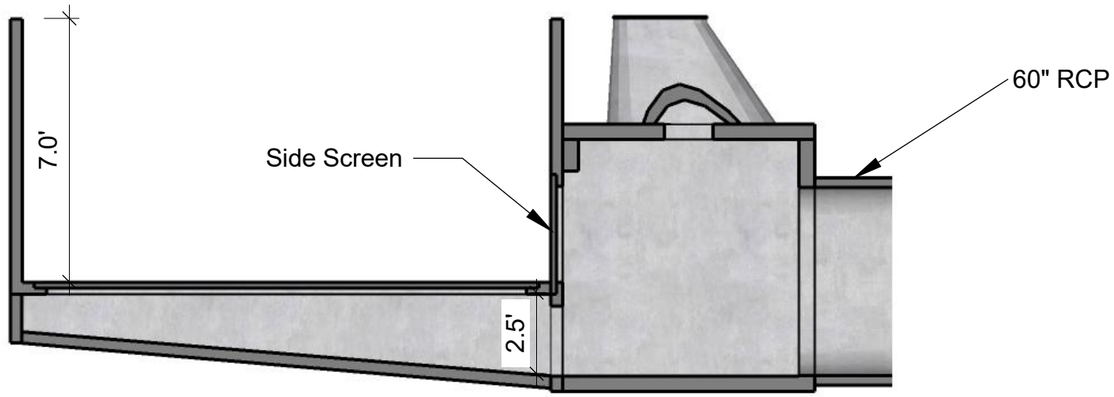
A



PLAN



B-B



A-A

Diversion - Plan and Sections

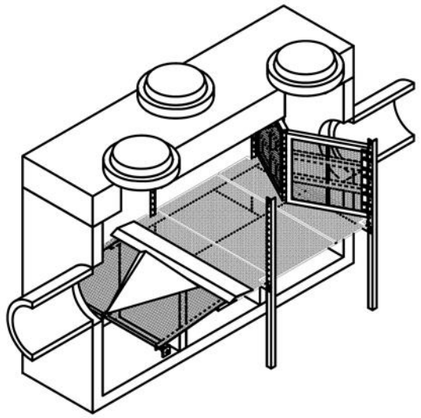
SEITec

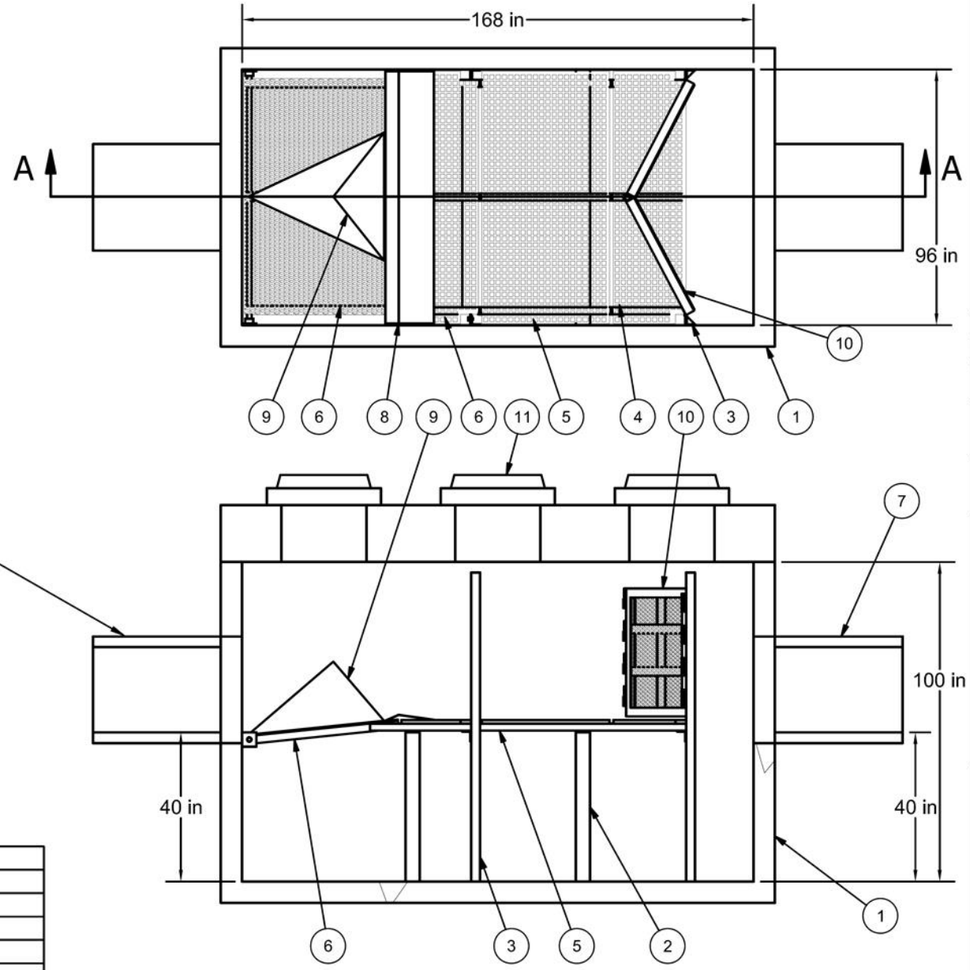
Valley Plaza Park Stormwater Project
StormTunnel Alternative

	MM/DD/YY	REMARKS
1	__/__/__	...
2	__/__/__	...
3	__/__/__	...
4	__/__/__	...
5	__/__/__	...

10

A





EQUIPMENT PERFORMANCE

Max. Treatment Flow Rate = 93 cfs
Typical Treatment Flow Rate = 37 cfs
Open orifice area of screen system = 78.4 sq.ft.
Min. Screenings Storage capacity = 14.2 yd3
Min. Sediment storage volume = 4.4 yd3

Parts List			
ITEM	QTY	SIZE	DESCRIPTION
1	1	8 ft x 14 ft	VAULT
2	2		BAFFLES
3	4		MOUNTING BRACKETS
4	3		HORZ. SCREEN PANELS
5	1		FRAME
6	1		INLET SCREEN PANEL
7	2	48 in	INLET/OUTLET PIPES (BY OTHERS)
8	1		TRANSITION CONNECTOR
9	1		FLOW SPREADER
10	2		VERT. SCREEN WEIR
11	3	30 in	FRAME AND COVER

Notes

1. MANHOLE WALL AND SLAB THICKNESSES ARE NOT TO SCALE.
2. CONTACT HYDRO INTERNATIONAL FOR A BOTTOM OF STRUCTURE ELEVATION PRIOR TO SETTING HYDRO DRYSCREEN SYSTEMS.
3. CONTRACTOR TO CONFIRM RIM, PIPE INVERTS, PIPE DIA. AND PIPE ORIENTATION PRIOR TO RELEASE OF UNIT TO FABRICATION.

REV	BY	DATE	DESCRIPTION
	JF	1/15/15	FIRST ISSUE

REVISION HISTORY

Date	Scale
1/15/15	NTS

Drawn	Checked	Approved
JF		

Title

DRYSCREEN
8' x 14' VAULT

GENERAL ARRANGEMENT

Hydro International

Stormwater Solutions
94 Hutchins Drive
Portland, Maine 04102
Tel: (207) 756-6200
Fax: (207) 756-6212
stormwaterinquiry@hydro-int.com

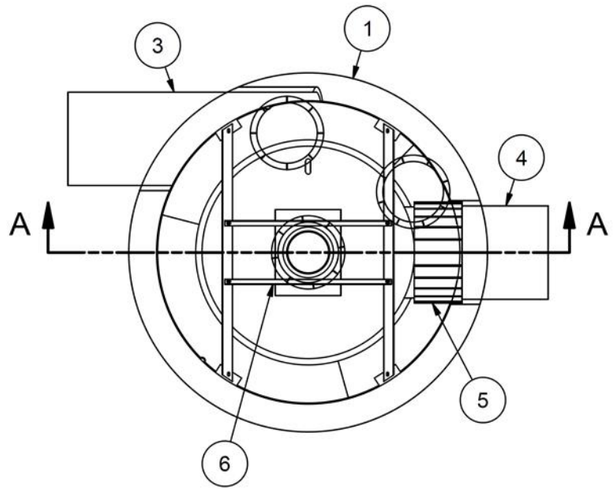
CAD Ref:	DS-8x14
Project No.	xx-xxxx
Drawing No.	DS-8x14 Rev.

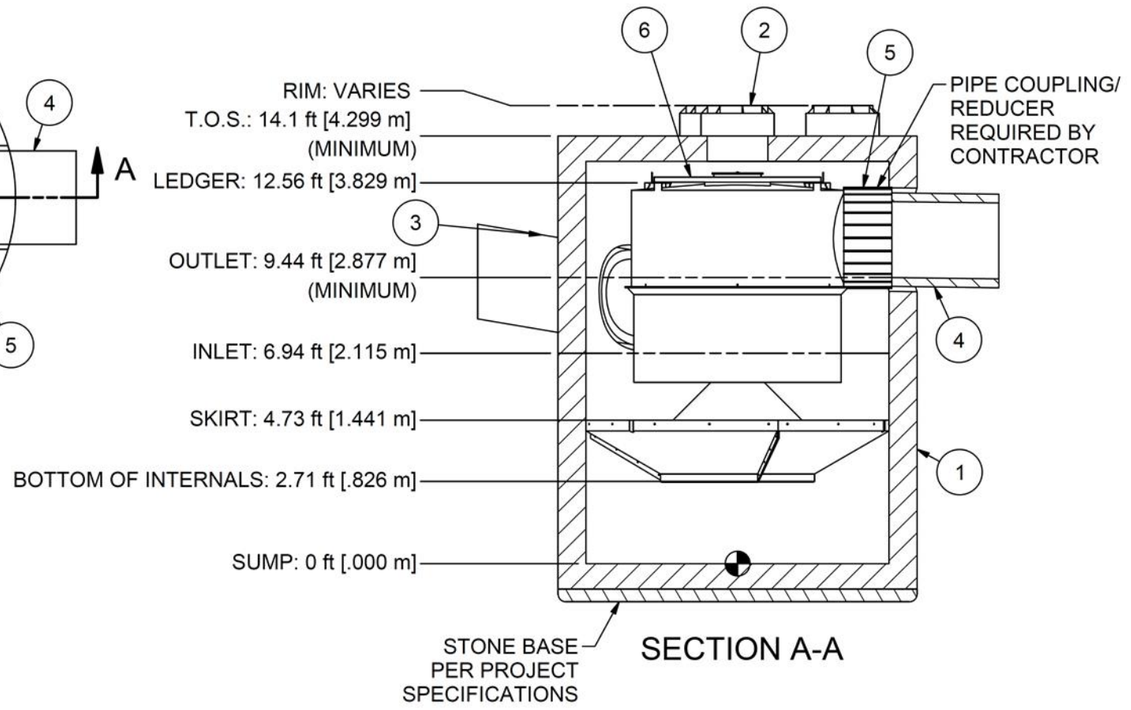
Sediment Filter

SEITec

Valley Plaza Park Stormwater Project
StormTunnel Alternative

	MM/DD/YY	REMARKS
1	__/__/__	...
2	__/__/__	...
3	__/__/__	...
4	__/__/__	...
5	__/__/__	...





SECTION A-A

Stormwater Quality Unit
Hydro International
207-756-6200
www.hydrointernational.biz

HYDRO FRAME AND COVER (INCLUDED)
GRADE RINGS BY OTHERS AS REQUIRED

NOTE: NOT FOR CONSTRUCTION. CONTACT HYDRO FOR SITE SPECIFIC DETAIL

EQUIPMENT PERFORMANCE

The stormwater treatment unit shall adhere to the hydraulic parameters given in the chart below and provide the removal efficiencies and storage capacities as follows:

1. The treatment system shall use an induced vortex to separate pollutants from stormwater runoff.
2. Peak Hydraulic Capacity: 25.0 cfs (708 l/s)
3. Sediment Storage Capacity: 8.70 cu. yd. (6.65 cu. m)
4. Continuous Oil Storage Capacity: 1050 gal. (3975 liters)
5. Sediment shall be stored in a zone that is isolated from the main flow path and protected from reintrainment by a benching skirt.
6. For more product information including regulatory acceptances, please visit https://hydro-int.com/en/products/downstream-defender

PARTS LIST

ITEM	QTY	SIZE (in)	SIZE (mm)	DESCRIPTION
1	1	120	3000	PRECAST MANHOLE (BY HYDRO VIA PRECASTER)
2	3	24	600	FRAME AND COVER (QTY 3)
3	1	30 (MAX)	750 (MAX)	INLET PIPE (BY OTHERS)
4	1	30 (MAX)	750 (MAX)	OUTLET PIPE (BY OTHERS)
5	1			PIPE COUPLING (BY OTHERS)
6	1			INTERNAL COMPONENTS (PRE-INSTALLED)

PROJECTION

IF IN DOUBT ASK

COMMENTS:
1. MANHOLE WALL AND SLAB THICKNESSES ARE NOT TO SCALE.
2. CONTACT HYDRO INTERNATIONAL FOR A BOTTOM OF STRUCTURE ELEVATION PRIOR TO SETTING DOWNSTREAM DEFENDER MANHOLE.

DATE:	SCALE:
11/8/2019	NTS

DRAWN BY:	CHECKED BY:	APPROVED BY
GW		

Title: 10ft-DIAMETER DOWNSTREAM DEFENDER

Hydro International®
hydro-int.com
HYDRO INTERNATIONAL

DO NOT SCALE DRAWING
STEEL FABRICATION TOLERANCES
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES.

LINEAR
000 - 012in = ±0.04in
012 - 024in = ±0.06in
024 - 048in = ±0.08in
048 - 120in = ±0.12in
120in >>>> = ±0.20in

ANGULAR
000 - 120in = ±1°
120 - 240in = ±0.5°
240in >>>> = ±0.25°

WEIGHT:	MATERIAL:
N/A	

REFERENCE NUMBER:

DRAWING NO.:

SHEET SIZE:	SHEET:	Rev:
B	1 OF 1	-

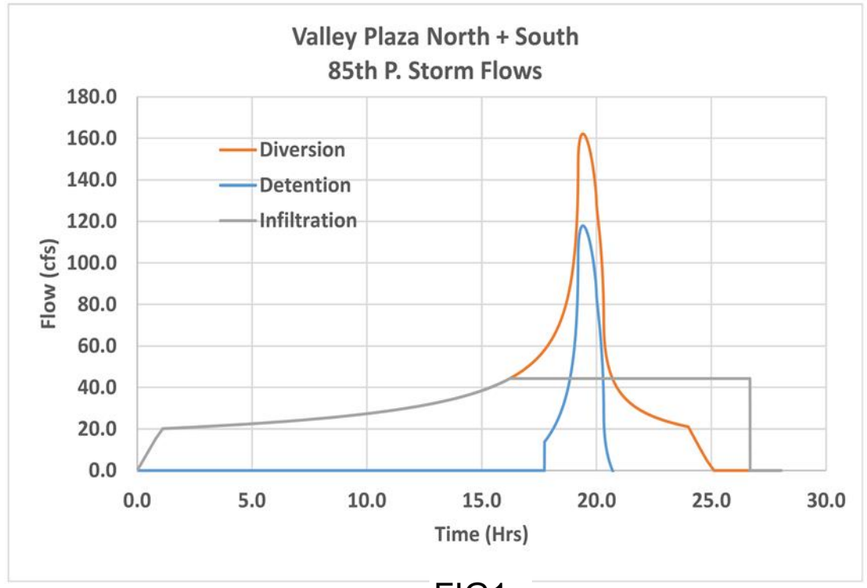


FIG1

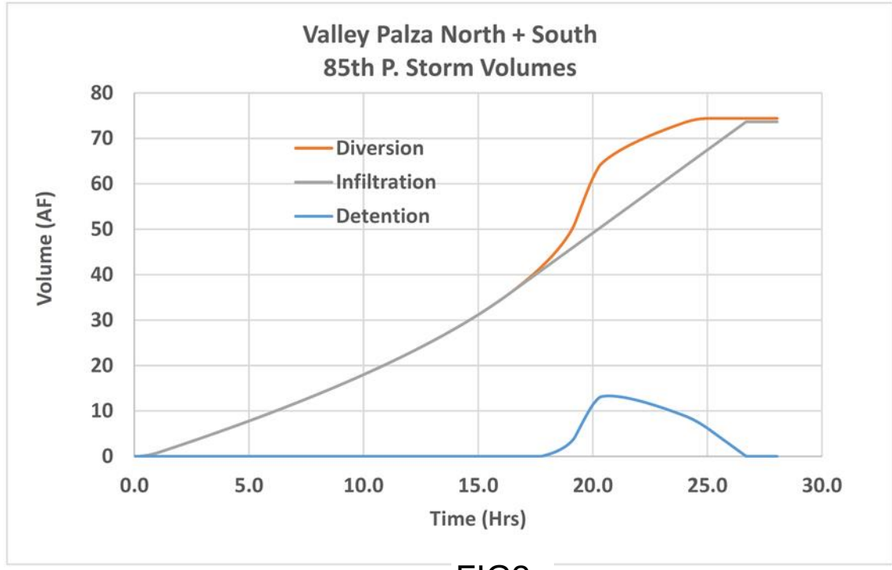


FIG2

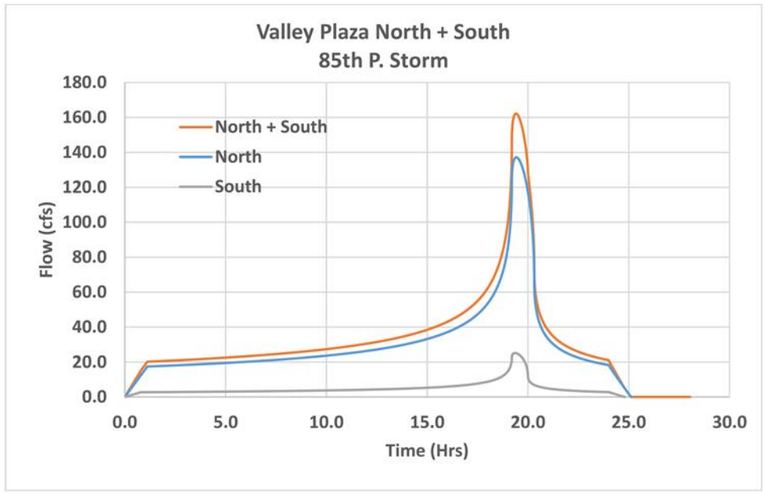


FIG3

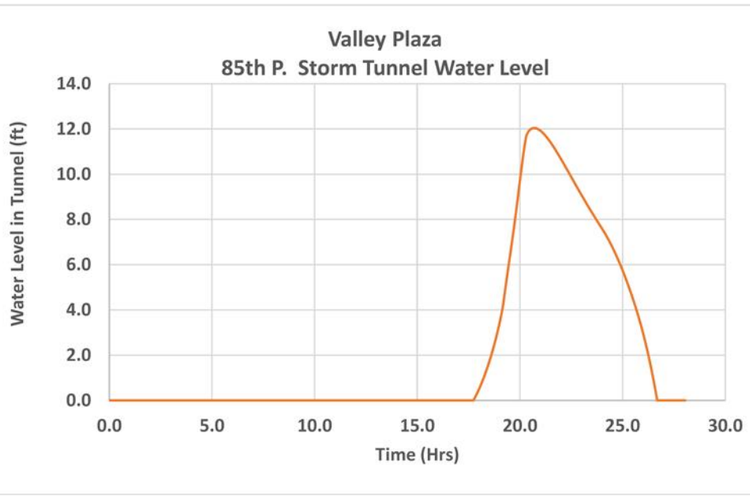


FIG4

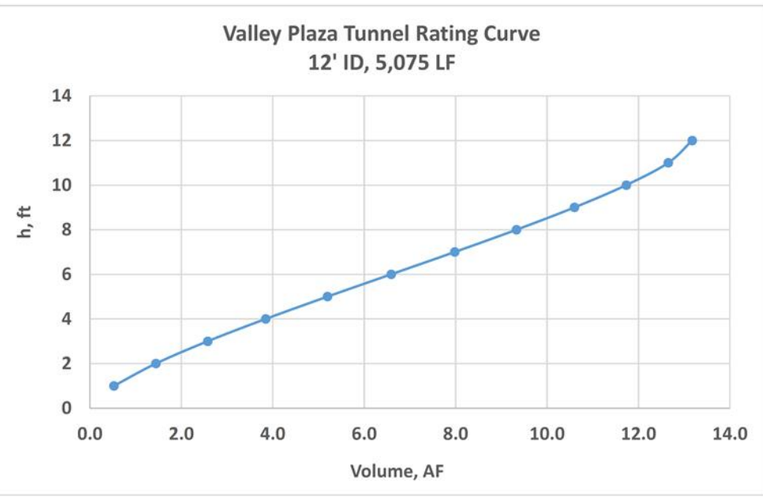


FIG5

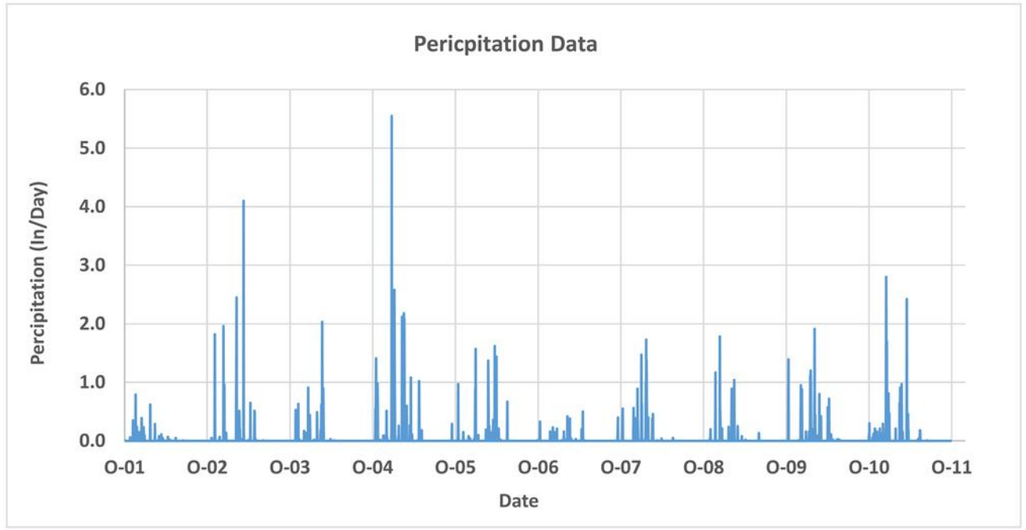
Modeling Results
85th P. 24-hr Storm

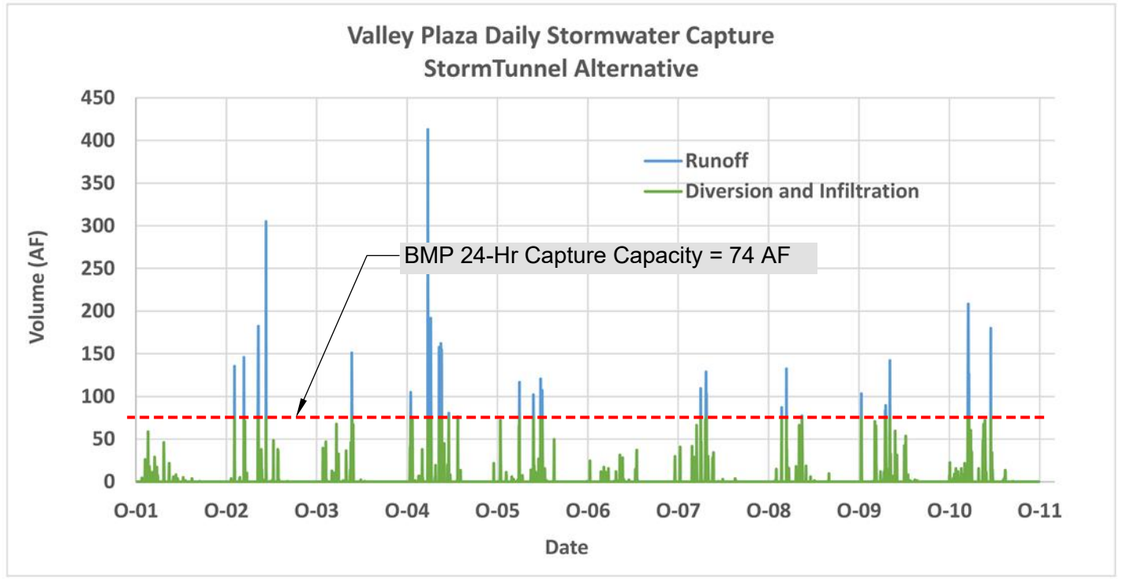
SEITec

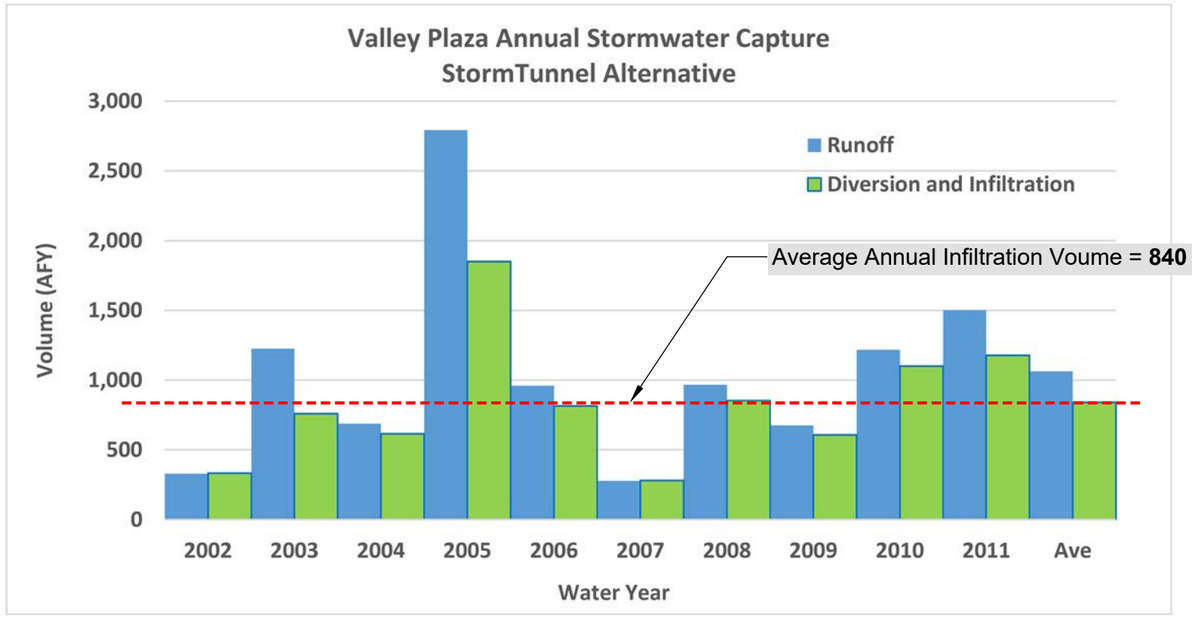
Valley Plaza Park Stormwater Project
StormTunnel Alternative

	MM/DD/YY	REMARKS
1	__/__/__	...
2	__/__/__	...
3	__/__/__	...
4	__/__/__	...
5	__/__/__	...

13
A







Modeling Results
10-yr Daily and Annual Capture

SEITec

Valley Plaza Park Stormwater Project
StormTunnel Alternative

	MM/DD/YY	REMARKS
1	__/__/__	...
2	__/__/__	...
3	__/__/__	...
4	__/__/__	...
5	__/__/__	...

14

A