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October 12, 2022 - Revised

City of Columbus, Department of Public Utilities
Attn: Greg Fedner, P.E.
Section Manager, Private Development
910 Dublin Road
Columbus, Ohio 43215

Subject: Type II Variance for American Self Storage, Phase II Refugee Road

Dear Mr. Fedner,

On behalf of American Self Storage of Pickerington, LLC, we are writing to request a Type II Variance from the City of Columbus Stormwater Drainage Manual (SWDM) dated May 2021 for the above referenced project. The requested Variance applies to the following sections of the SWDM:

1) Section 3.1, Paragraph 2
   a) Stormwater quantity control facilities shall not be located within designated Federal Emergency Management Agency (FEMA) 100 year floodplain boundaries.
2) Section 3.1, Paragraph 7
   a) Storage capacity below the base flood elevation shall not be included in total storage capacity calculations for stormwater control facilities located adjacent to or vertically within the 100 year floodplain boundary.

Site Information:

Project Name:	American Self Storage, Phase II (CC-19493)
Address:	1701 Refugee Road, Columbus, Ohio 43147
PID:	050-255283
Site Disturbance:	3.45 Acres
Total Site Area:	8.26 Acres
Date Property Acquired:	May, 2016
Primary Owner Contact:	American Self Storage of Pickerington, LLC C/o Robert LeVeck 232 Frankfort Sq Columbus, Ohio 43026 (614) 582-4765; rleveck@leveckconstruction.com

Reasoning for Variance Request

This project is an expansion of an existing self-storage facility, constructed in 2017. The site exists largely within the 100-year floodplain, with a base flood elevation (BFE) of 795.50. To construct the currently existing development, fill was placed to raise the building site to an approximate minimum elevation of 797.00, above the BFE, and compensatory cut was to be provided adjacent to the storage units. No construction took place within the Stream Corridor Protection Zone or the

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Floodway. At the time of construction of the now-existing facility, the storm water control basin was installed with storage volume below the BFE, which at the time was not specifically disallowed by the SWDM. The horizontal location of the basin, however, did violate the SWDM at the time by not first acquiring a LOMR-F ahead of construction, and it does not appear that a Variance was granted. This request would also address that past violation.

The Owner intended at the time and intends now to develop Phase II of this project by adding three more self-storage structures inside the site. The intent is to further fill within the floodplain to expand the site building pad, and to use compensatory cut to ensure that the floodplain storage is not impinged. To accommodate stormwater quantity and quality controls it will reshape the top of bank of the existing basin to better define and slightly expand it. This will expand the surface area of the basin from 15,084 square feet to 15,323 square feet, and raise the 100-year storage elevation from 793.84 to 794.54, a 0.7' increase.

The impact on water quality and quantity if this Variance is granted will be minimal. This is a minor expansion of an existing basin, which will continue to function as it currently does. The volume of storage below the BFE is slightly increased, but this will not have a significant impact in how the basin functions in relation to the upstream watershed. The basin has an extremely small tributary area (5.06 acres) compared to the 50-square mile upstream tributary area of Blacklick Creek (see the attached streamstats report for details), so the relative drainage increase is extremely small. Additionally, with a 23.6 mile flow path, the time of concentration for the area of floodplain in question will be substantially longer than that of the basin, so it is highly unlikely that both tributary areas will achieve peak flows simultaneously. To further reduce impacts, the Developer as part of this project will install a backwater device on the existing basin outlet as part of this Variance.

Hardship

As explored below, there are no viable alternatives for further development of the site if a Variance is not able to be granted. The Owner bought the property in 2016 and was able to build out the initial phase of the site by providing storage below the elevation of the BFE under the August 2012 SWDM. The inability to finish this development would cause the Owner to suffer economic hardship as they would be unable to realize the development potential of the site as they understood it when they purchased it in 2016.

Exploration of Alternatives

Unfortunately, there are no viable, cost-effective alternatives to continue to develop this site to the Owner's original understanding of its potential within the requirements of the latest edition of the SWDM.

To comply with **Section 3.1 Paragraph 2**, any improvements would need to be preceded by a grading plan and associated LOMR-F that is then approved by FEMA. This would require the owner to undertake additional engineering and permitting that would also further delay the project, but it is possible to comply with this Section.

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To comply with **Section 3.1 Paragraph 7**, the following options were considered:

1. **Below-grade surface detention (pond, wetland, etc) on new portion of site development:** This option was found to be infeasible due to site space constraints. Because this BMP must be added to the site layout and be above the 100 year flood elevation, additional site area must be filled in and the entire site filled to a higher elevation than the existing Phase 1 improvements. This additional fill area and volume would dramatically exceed the amount of area and volume available on the remainder of the site to provide compensatory cut as required by the SWDM. This option would trigger the need for a Variance from Section 1.4 of the SWDM, as well as additional hydrologic studies and FEMA coordination, so it is not a viable candidate for full SWDM compliance.
2. **Underground detention (ADS-type storage, permeable pavement):** While this storage type would not directly increase the site footprint, underground storage would require the site be raised several feet above the elevation of the existing Phase 1 improvements to keep the detention above the BFE. The grading required to accomplish this elevation increase would require expansion of the site footprint both to accommodate the transition from the Phase 1 elevation and the transition back to the floodplain elevation. The resulting footprint would require more compensatory cut volume than is available on the site. This option would trigger the need for a Variance from Section 1.4 of the SWDM, as well as additional hydrologic studies and FEMA coordination, so it is not a viable candidate for full SWDM compliance.
3. **Surface-level detention (parking lot ponding and/or rooftop storage):** The new site requires approximately 13,000 cubic feet of stormwater storage, which as discussed below will be difficult to achieve using surface storage. We reviewed this option in three different ways:
    a. **Parking Lot Ponding:** Section 3.4.1, Table 3-3 requires 1' of freeboard be provided between the top of the 100 year ponding surface and the finished floor of any buildings, which reduces the available parking lot ponding to a negligible amount. If the site was granted a Variance from Table 3-3 (which we are not requesting here), the parking lot would only be able to provide 4,860 cubic feet of storage. So it is clear that there is insufficient storage even in a non-compliant configuration, meaning this option is not viable for full SWDM compliance.
    b. **Hybrid Parking Lot and Rooftop Storage:** The most cost-effective way to incorporate rooftop storage would be for the rooftops to detain water that falls on the buildings. We investigated to see if this improved the storage sufficiently to avoid the issue described above. The buildings would in this scenario account for 4,405 cubic feet of the required detention, which leaves 8,625 cubic feet that the parking lot would need to detain. As shown above, the parking lot would not have sufficient volume even if a Variance is granted, meaning this option is not viable for full SWDM compliance.
    c. **Rooftop Storage:** This could conceivably handle all the needed stormwater detention. However, to move the water from the ground level to the roofs, a pumping system would be necessary, which would add cost and complexity to the project. This pump system would need to be a metered system capable of splitting flow proportionally between the three roof units. To avoid a Variance to Section 3.4.1 Table 3-3, it would need to be able to handle

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approximately 2/3 of the site's peak flow for a given storm. Ultimately this would require a pump station capable of handling several thousand gallons per minute of flow. Because of the high volumetric flow rate, a header system would be necessary to avoid overloading the roof detention with point discharge flow. While this station may be technically feasible, it is not worthwhile to pursue for this application.

4. **Full Site Redevelopment with Pond storage:** It may be feasible, if the entire site is redeveloped, to raise the grade sufficiently far above the BFE that the joint detention pond storage is entirely above the BFE. By reconfiguring the site and combining stormwater controls, it is more likely that a solution could be found that does not violate Section 1.4 of the SWDM. This option would require an estimated 40,000 cubic yards of fill be brought to the site. The cost of this fill coupled with the cost of reconstructing the existing improvements make this option infeasible for the Owner.

Alternatives Summary

Below is a summary of alternatives as shown on the attached exhibits:

Alternative 1 – Full Compliance: As discussed above, it is likely the only way this portion of the site could be developed in full compliance with the SWDM is by redeveloping the existing improvements in conjunction with the new project. The owner will not be able to pursue this option.

Alternative 2 – Minimal Impact Alternative: This alternative would seek to construct the Preferred Alternative but would minimize the number of Sections the project requests a Variance from. In this case the project would seek to comply with Section 3.1 Paragraph 2 by filing a grade-and-fill CC plan and constructing the appropriate fill prior to expanding the capacity of the pond or constructing any improvements. Once the fill is in place, the project would coordinate with FEMA to obtain a LOMR-F to bring the site out of the flood plain, and concurrence that the basin can be placed where shown. We would then construct the Preferred Alternative described below, requiring only a Variance to Section 3.1 Paragraph 7.

This option would add significantly to the cost and complexity of the project, and the end result would not be functionally different from the Preferred Alternative, which we feel is the simplest and lowest-impact solution to allow this site to develop as originally planned.

Alternative 3 - Preferred Alternative: The project would expand the site to the southwest as shown in the attached exhibit.

The site would be filled to raise the building pad areas out of the floodplain vertically. The existing pond limits would be reshaped to expand the surface area of the basin from 15,084 square feet to 15,323 square feet, and raise the 100-year storage elevation from 793.84 to 794.54, a 0.7' increase.

Compensatory cut would be taken from the south end of the property to compensate for this fill. The proposed contours shown on this plan accommodate the needed compensatory cut for both the initial and current phases of the plan. Completing this Phase would correct any lingering issues with the compensatory cut from Phase 1.

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The project would install a backflow device on the pond's outfall to ensure that floodwaters do not encroach on required stormwater storage. As stated above, it is highly unlikely that the two tributary areas would peak simultaneously.

This would amount to a minor expansion of the existing basin and a small increase in the detention elevation. Since this is a relatively small expansion of an existing facility we feel that, for Section 3.1 Paragraph 7, this truly is the minimal impact. There is no physical difference between this Alternative and the Minimal Impact Alternative—the only difference is in how many Variances would be requested. The Variance for Section 3.1 Paragraph 2 would apply to the horizontal limits of the expanded site, as well as the existing site condition that is not currently in compliance. The Variance for Section 3.1 Paragraph 7 would apply only to the increased stormwater detention in the existing pond since the original site fell under the former manual.

If you have any questions regarding this request, please do not hesitate to contact me at 740-345-1921 or via email at nmill@adrinnovation.com.

Thank you for your consideration of this request.

Sincerely,

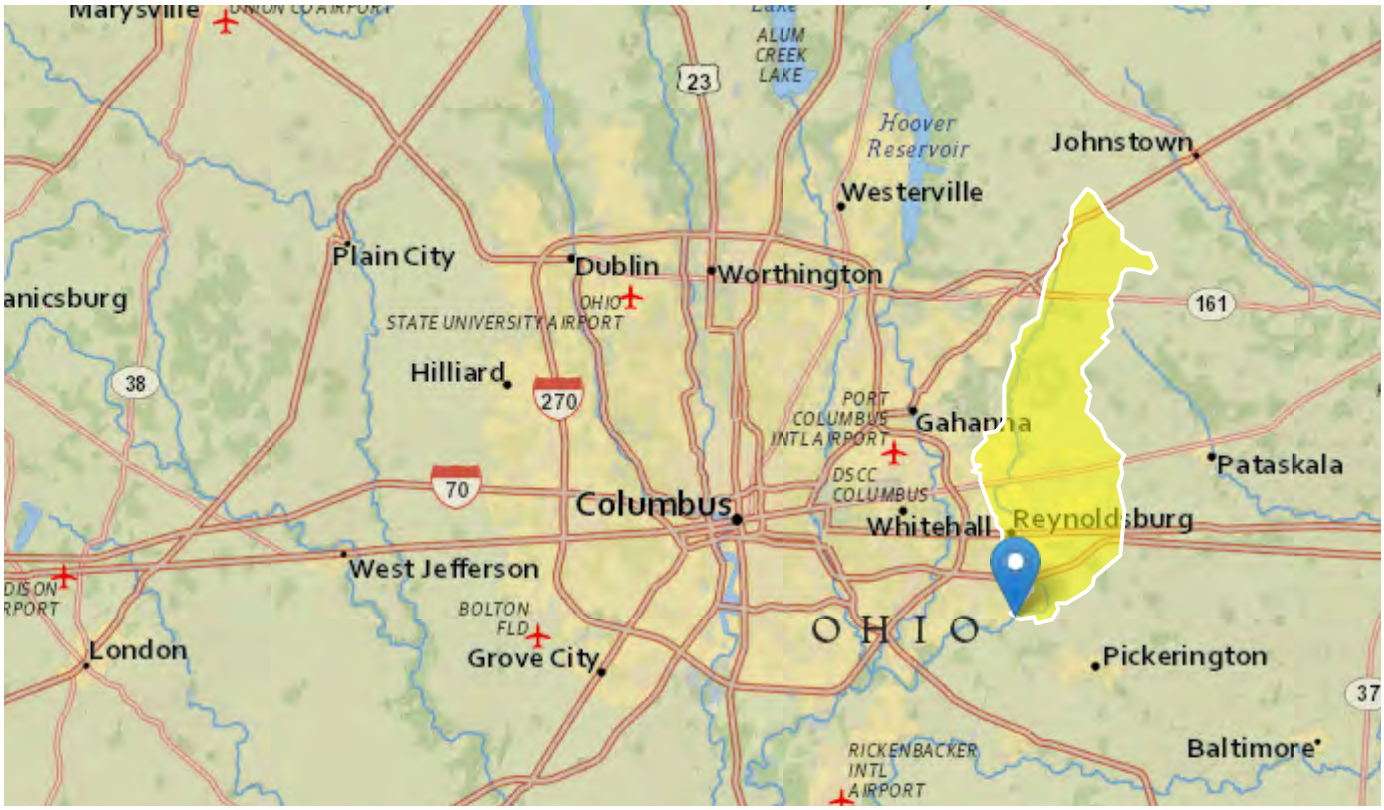
Nicholas D. Mill, PE

Enclosures: Exhibit 1: Alternate 1 - Full Compliance
Exhibit 2: Alternate 2 – Minimal Impact
Exhibit 2: Alternate 3 - Preferred Alternate
Streamstats Report

Copies: File
Robert LeVeck

American Self Storage Pickerington Streamstats Report

Region ID: OH
Workspace ID: OH20220811175929044000
Clicked Point (Latitude, Longitude): 39.91102, -82.80945
Time: 2022-08-11 13:58:43 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CSL1085LFP	Change in elevation divided by length between points 10 and 85 percent of distance along the longest flow path to the basin divide, LFP from 2D grid	17.1	feet per mi
DRNAREA	Area that drains to a point on a stream	50	square miles
FOREST	Percentage of area covered by forest	26.3	percent
LC92STOR	Percentage of water bodies and wetlands determined from the NLCD	1.37	percent

Parameter Code	Parameter Description	Value	Unit
LFPLENGTH	Length of longest flow path	23.6	miles
OHREGA	Ohio Region A Indicator	1	dimensionless
OHREGC	Ohio Region C Indicator	0	dimensionless
PRECIPCENT	Mean Annual Precip at Basin Centroid	37.4	inches
STREAM_VARG	Streamflow variability index as defined in WRIR 02-4068, computed from regional grid	0.55	dimensionless

Peak-Flow Statistics

Peak-Flow Statistics Parameters [Peak Flow Full Model Reg A SIR2019 5018]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	50	square miles	0.04	5989
OHREGC	Ohio Region C Indicator 1 if in C else 0	0	dimensionless	0	1
OHREGA	Ohio Region A Indicator 1 if in A else 0	1	dimensionless	0	1
CSL1085LFP	Stream Slope 10 and 85 Longest Flow Path	17.1	feet per mi	1.53	516
LC92STOR	Percent Storage from NLCD1992	1.37	percent	0	25.35

Peak-Flow Statistics Flow Report [Peak Flow Full Model Reg A SIR2019 5018]

PIl: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PIl	PIu	ASEp
50-percent AEP flood	1880	ft^3/s	996	3550	40.1
20-percent AEP flood	3000	ft^3/s	1660	5410	37.2
10-percent AEP flood	3850	ft^3/s	2120	6990	37.6
4-percent AEP flood	5050	ft^3/s	2760	9220	38.1
2-percent AEP flood	6010	ft^3/s	3260	11100	37.8
1-percent AEP flood	7030	ft^3/s	3770	13100	39.6

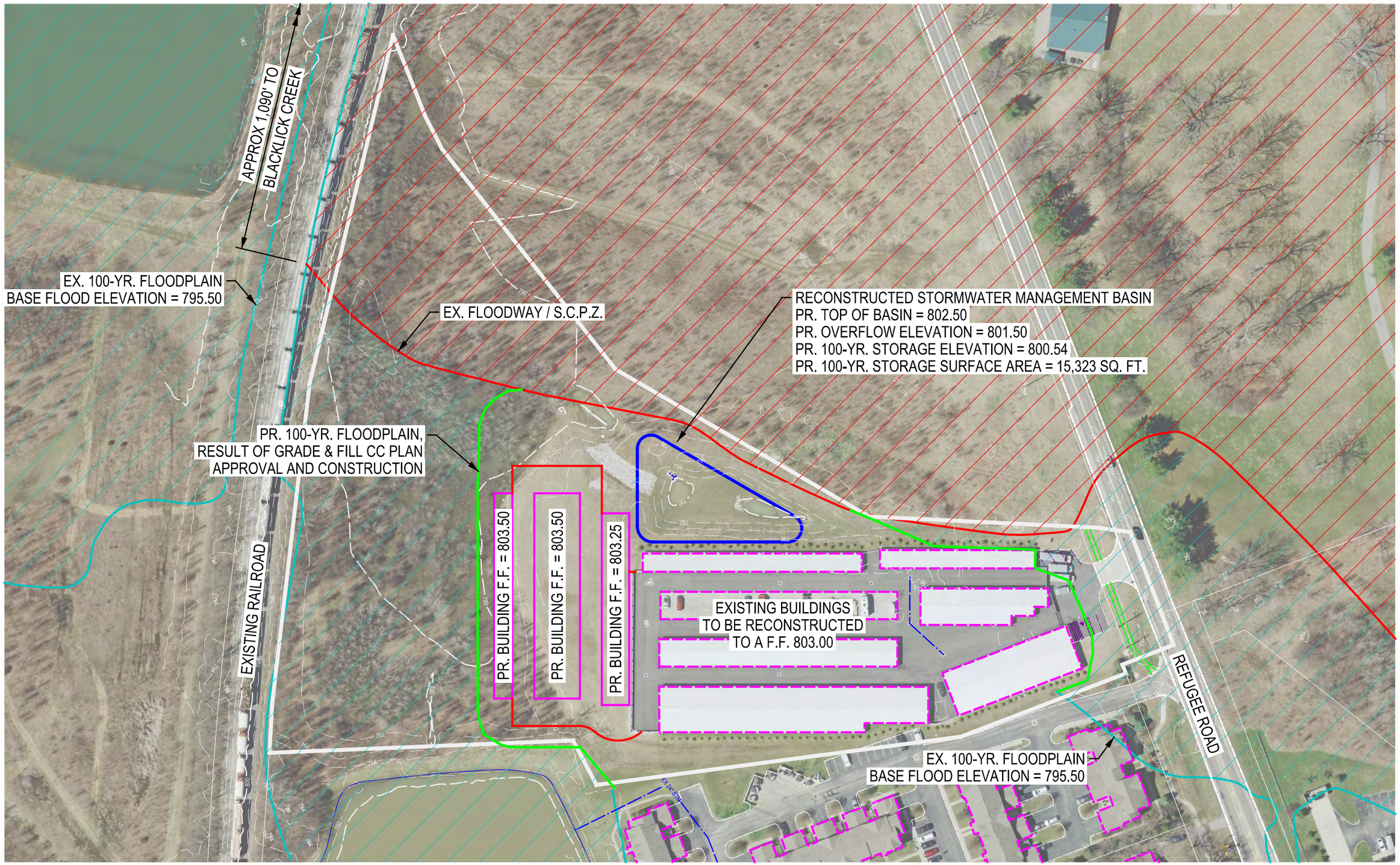
Statistic	Value	Unit	PII	Plu	ASEp
0.2-percent AEP flood	9610	ft^3/s	5110	18100	40.3

Peak-Flow Statistics Citations

Koltun, G.F.,2019, Flood-frequency estimates for Ohio streamgages based on data through water year 2015 and techniques for estimating flood-frequency characteristics of rural, unregulated Ohio streams: U.S. Geological Survey Scientific Investigations Report 2019–5018, 25 p. (https://dx.doi.org/10.3133/sir20195018)

Application Version: 4.10.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

ALTERNATIVE 1 - FULL COMPLIANCE



HORIZONTAL SCALE IN FEET
0 100 200

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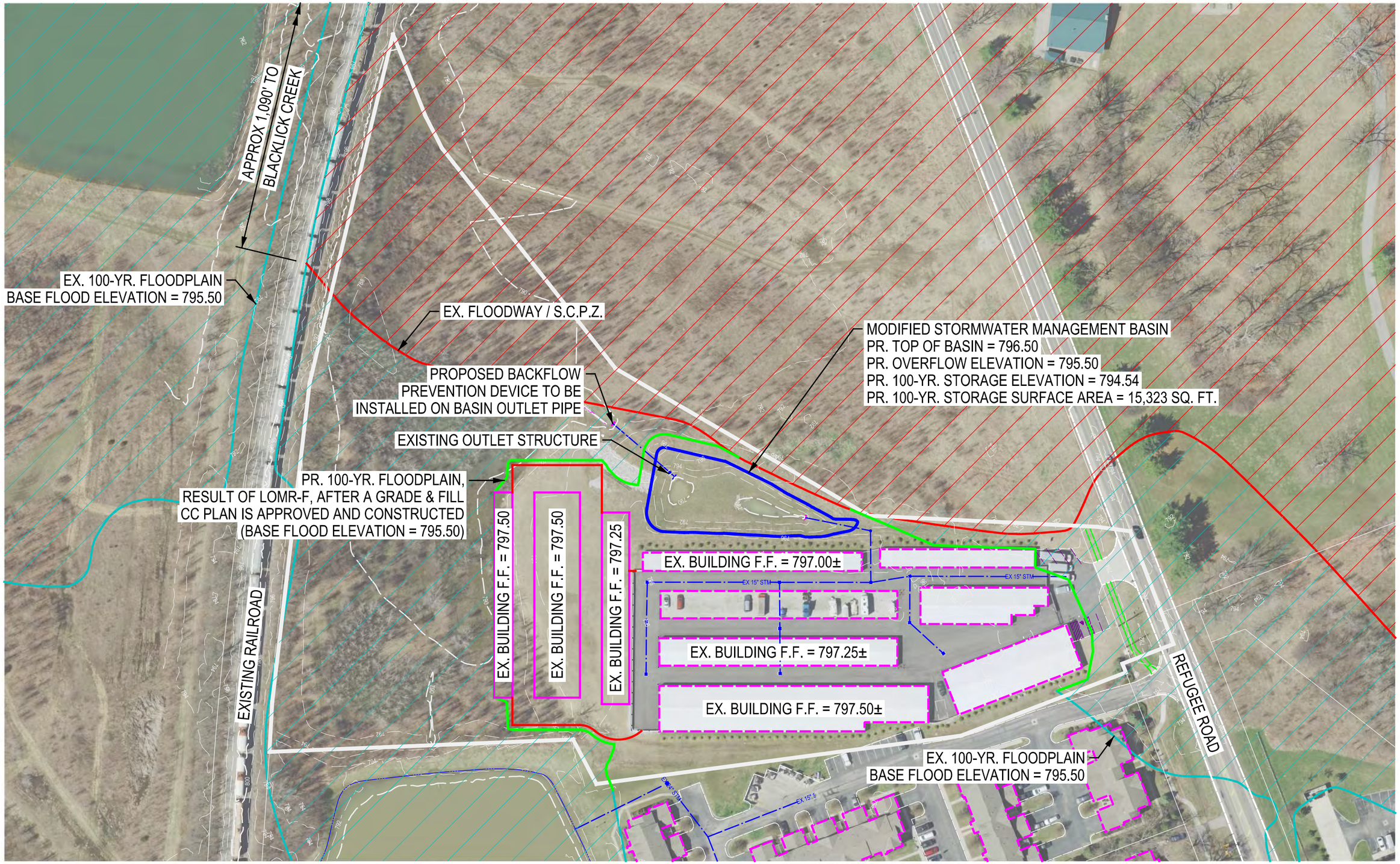
AMERICAN SELF STORAGE, PHASE II
1701 REFUGEE ROAD
TYPE II STORMWATER VARIANCE

1
3

ALTERNATIVE 2 - MINIMAL IMPACT



HORIZONTAL SCALE IN FEET
0 100 200

DRAWN BJW
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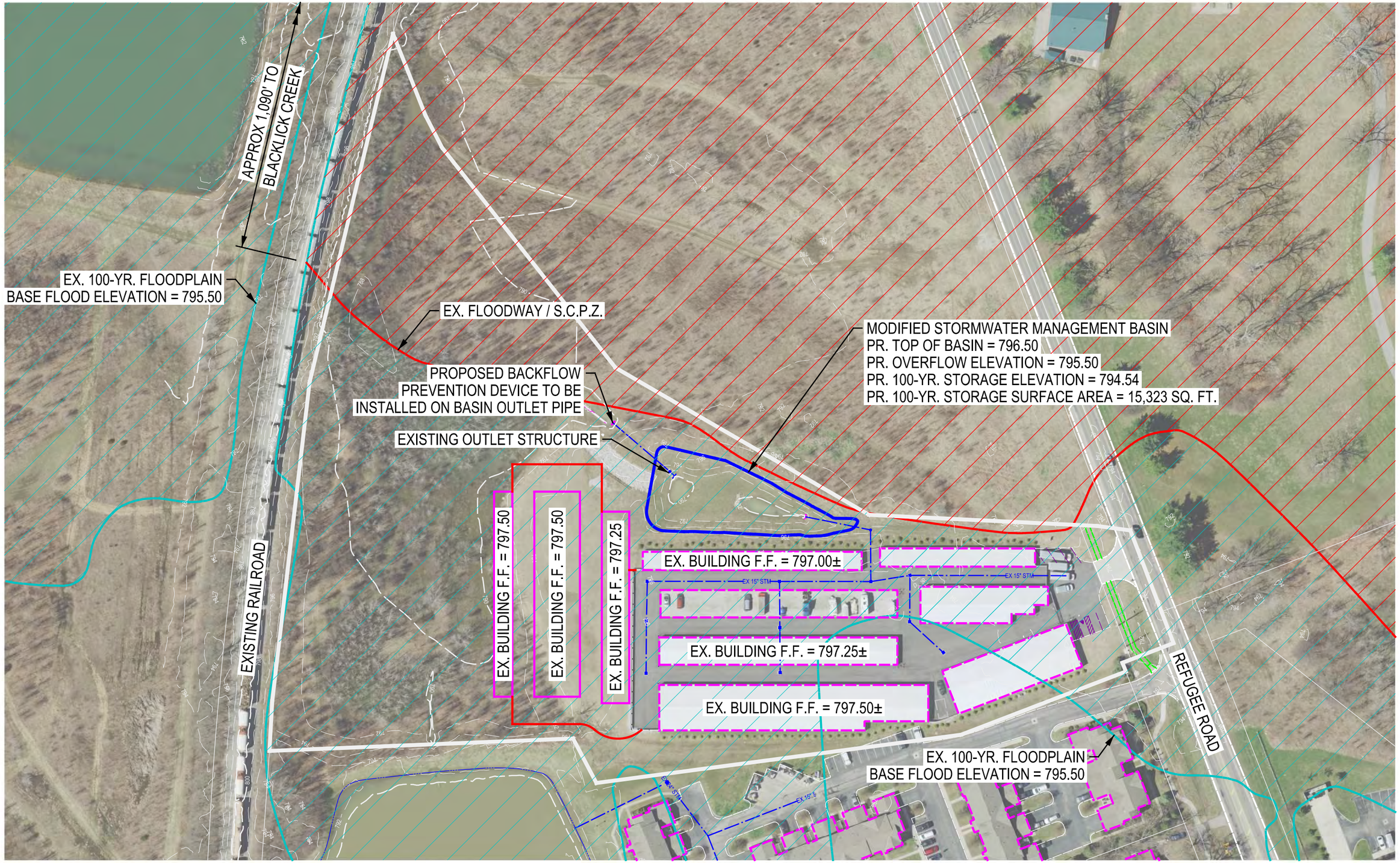
TYPE II STORMWATER VARIANCE

ALTERNATIVE 3 - PREFERRED ALTERNATIVE



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