# VARIANCE REQUEST AND REPORT TO THE STORMWATER DRAINAGE MANUAL

3/19/2020

1431 Community Park Drive, Columbus, Ohio (CC-18536)

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# Variance Request and Report to the Stormwater Drainage Manual

1431 COMMUNITY PARK DRIVE, COLUMBUS, OHIO (CC-18536)

#### **PURPOSE**

The purpose of this report is to request a Type II Non-Stream Protection Variance from the City of Columbus' Stormwater Drainage Manual for the existing site located at 1431 Community Park Drive in Columbus, Ohio. The existing site, located on the south side of Community Park Drive approximately 500' west of Cleveland Avenue, has been flagged recently by City staff as being non-compliant and requiring an updated Site Compliance Plan on file with the City. Due to unpermitted gravel paving occurring on this site exceeding 2,000 s.f. of additional impervious surface, an updated CC-Storm plan has also been required.

Based on the constraints of the site, we are requesting the following variances:

Variance to Section 3.2.3.1 of the City of Columbus Stormwater Drainage Manual to waive the requirement of 1-foot of freeboard above the 100-year design event to the basin embankment elevation.

Variance to Section 3.2.3.1 of the City of Columbus Stormwater Drainage Manual to allow side slopes within and adjacent to the basin to be 2 (H) to 1 (V) or flatter.

Variance to Section 3.2.3.2 of the City of Columbus Stormwater Drainage Manual to allow for a dry detention basin with bottom width less than 12 feet.

Variance to Section 3.2.3.2 of the City of Columbus Stormwater Drainage Manual to allow for a dry detention basin with minimum transverse slope for the bottoms of such facilities to be 1.0 percent.

The site cannot meet the above requirements due to the following constraints:

- 1. The existing parcel is only 50' wide despite being approximately 415' in length. Due to the awkward length to width ratio, it is difficult to provide detention for the entire 415' length of the site without the basin occupying the prime usable space onsite or without installing significant storm sewer infrastructure. In order to provide a minimum slope of 1.0% along the length of the basin, the basin must be at least 3' deep. With a 4:1 slope on the basin, 3' depth, and 12' basin bottom width, the basin would be require a minimum 36' width, exceeding 2/3rds of the entire parcel's usable width.
- 2. Underground detention was evaluated for this site to meet city storm water requirements, however we are unable to provide the required minimum cover on an underground system and still connect into the existing catch basin in Community Park Drive. The invert of the existing catch basin is 867.61.
- 3. The lot is currently operated as a storage yard for the materials and equipment associated with the adjacent Blue Ring Residential Services landscaping company, which owns both properties. The lot is primarily used for the storage of landscape materials such as stone, mulch and topsoil. Some vehicles are



parked there during non working hours. This existing use results in a relatively high amount of traffic throughout the existing parcel. As such, any proposed storm inlets to be installed in the parking area would undergo regular vehicle traffic resulting in potential damage to the storm infrastructure. The nature of the materials stored on site will also result in ongoing maintenance issues for a proposed storm sewer.

4. The current use of the existing parcel requires access to as much of the parcel as possible, if not the entire parcel, for the operations of the adjacent landscaping company. Both the existing lot and adjacent Blue Ring Residential Services lot are currently landlocked with no apparent opportunity to expand and provide additional storage yard area. As such, as much usable space on the parcel must be retained as possible for the operation of the existing business.

Per the City of Columbus guidelines for a Type II Non-Stream Protection Variance, three alternatives for development are required to be presented. They are as follows:

#### Alternative 1 – Full Compliance

A site plan has been provided showing a triangular basin design that would be meet the 4:1 slopes, with full emergency spillway and approximately 1 foot of freeboard from the estimated 100-year elevation to the basin embankment. This option heavily limits the usable space onsite while also causing concerns that the shape and size of the basin are not feasible for the owners operation.

#### • Alternative 2 – Minimal Impact

An alternative site plan has been provided showing a square basin design that would also meet the 4:1 slopes, with full emergency spillway. This alternative provides the required storage and retains a significant usable portion of the lot, but would require extensive storm sewer infrastructure which becomes a maintenance concern for the owners operation. The operations involves the storage of landscape material such as mulch and stone on site. It is our concern that these materials will get tracked back and forth and create clogging issues for catch basins and storm sewer pipes.

#### • Alternative 3 - Preferred

The preferred site plan has been shown with a lengthy rectangular basin with 2:1 slopes. The preferred basin would provide enough volume to handle the 100-year storm event and would utilize the existing slopes to force overflow to Community Park Drive. This alternative will provide the most usable space to the owner possible, while also requiring the least amount of on-going maintenance and cost for the owner. The side slopes of the swale will be vegetated per CMS 659B. Straw blankets containing the seed mix shall be used to stabilize the side slopes until the seed mixture has established. The side slopes will be protected from vehicles using concrete parking blocks spaced with a 3' gap between stops.



#### SECTION 1 – VARIANCE REQUEST

#### **EXISTING CONDITIONS**

The existing site is an approximately 0.48-acre parcel located on the south side of Community Park Drive. The site is currently used as a storage yard for the neighboring Blue Ring Residential Services landscaping company. Both parcels are owned by Blue Ring. However, the main parcel for Blue Ring is located in Sharon Township while the property under question was annexed into the City of Columbus. There are no buildings located on the existing Columbus parcel, although there are a handful of storage trailers that are to be relocated as necessary. The site is currently zoned R-residential in the City of Columbus. The site is bound to the north by Community Park Drive, the east by the existing Blue Ring Residential Services commercial office (Sharon Township), a single-family home to the south (Sharon Township), and the existing Church of God of Prophecy to the west.

Although there has been no change of use or improvements proposed, the site has recently been declared non-compliant and was forced to submit an updated Site Compliance Plan within the City of Columbus. During this site compliance review, it was noted that non-permitted gravel pavement has been added onsite and that a CC-Storm plan must be submitted for this additional impervious surface.

The yard is used for the storage of landscape materials. Some vehicles are parked on site during non working hours. In recent years, additional gravel pavement has been added to meet the growing needs of Blue Ring for their material storage.

#### **Proposed Conditions**

At this time, there are no site improvements proposed aside from the requirements set forth in both the Site Compliance Plan review and the CC-Storm plan review set forth by the City of Columbus. Due to infrastructure and cost constraints, a dry detention basin has been proposed to provide adequate detention to the site per the City of Columbus Stormwater Drainage Manual.



#### SECTION 2 – PROPOSED ALTERNATIVES

Per the City of Columbus guidelines for a Type II Non-Stream Protection Variance, three alternatives for development of this project are presented in this report. They are as follows:

#### Alternative 1 - Full Compliance Site Plan

In order to meet the full intent of the Stormwater Drainage Manual, this Full Compliance Site Plan has been proposed as an option that would meet the required 4:1 slopes, provide approximately 1 foot of freeboard, and exhibit a full emergency overflow spillway. This option will require the regrading of the bulk of the gravel pavement on the lot to drain to the proposed basin. To minimize the disturbance, a triangular basin has been proposed with bottom slopes of approximately 1%. As the basin extends southward, the width of the basin is reduced to minimize impact while still allowing drainage.

In order to provide a running slope of 1% from the southern portion of the site to the northern outlet, a minimum basin depth of 3 foot is required. At a 4:1 slope, this minimum depth results in side slope widths of 12' to either slope. With the required 12' minimum width, a 36' wide basin would be required at the widest portion near the front of the lot. As the existing lot is only 50' wide, this takes up more than 2/3rds the frontage of the lot. Additionally, even with the basin thinning as possible, there will be a loss of 40-50% of the usable storage area on this lot. This basin also results in a significant amount of storage volume not required by code and thus an additional amount of dirt to export from the site. Due to the extreme loss of usable space, we do not feel the full compliance option is feasible for the owner to continue to operate onsite.

#### Alternative 2 - Minimal Impact Site Plan

As a minimal impact option, we have proposed a more square basin to be located at the northern end of the property near Community Park Drive. With this alternative, the 4:1 slopes can be met with a minimum 12' bottom basin width, as well as meeting volume requirements. However, with all detention volume located at the northern end of the parcel, significant storm sewer infrastructure will be required to drain the southern bulk of the site. As such, we have shown a run of yard drains and minimum 8" storm sewer to drain the site to the basin. Additionally, the proposed alternative can be used to provide a full emergency spillway and 6-8" of freeboard above the 100-year elevation.

While the square basin provides adequate detention and slopes in a minimized square footage, the required storm sewer improvements cause additional issues onsite. The limited 3' depth of this alternative results in minimal pipe cover for any storm sewers upstream of the basin. Additionally, the infrastructure would require multiple yard drain inlets to be located in a gravel pavement area with a significant amount of equipment traffic. This will further limit the owners ability to store stockpiles of landscape materials around the site. Despite providing approximately 80% usable space on the parcel, the combined risks of the shallow storm sewer and yard inlets in a gravel pavement area represent serious flaws to this proposed alternative.



#### Alternative 3 - Preferred Site Plan

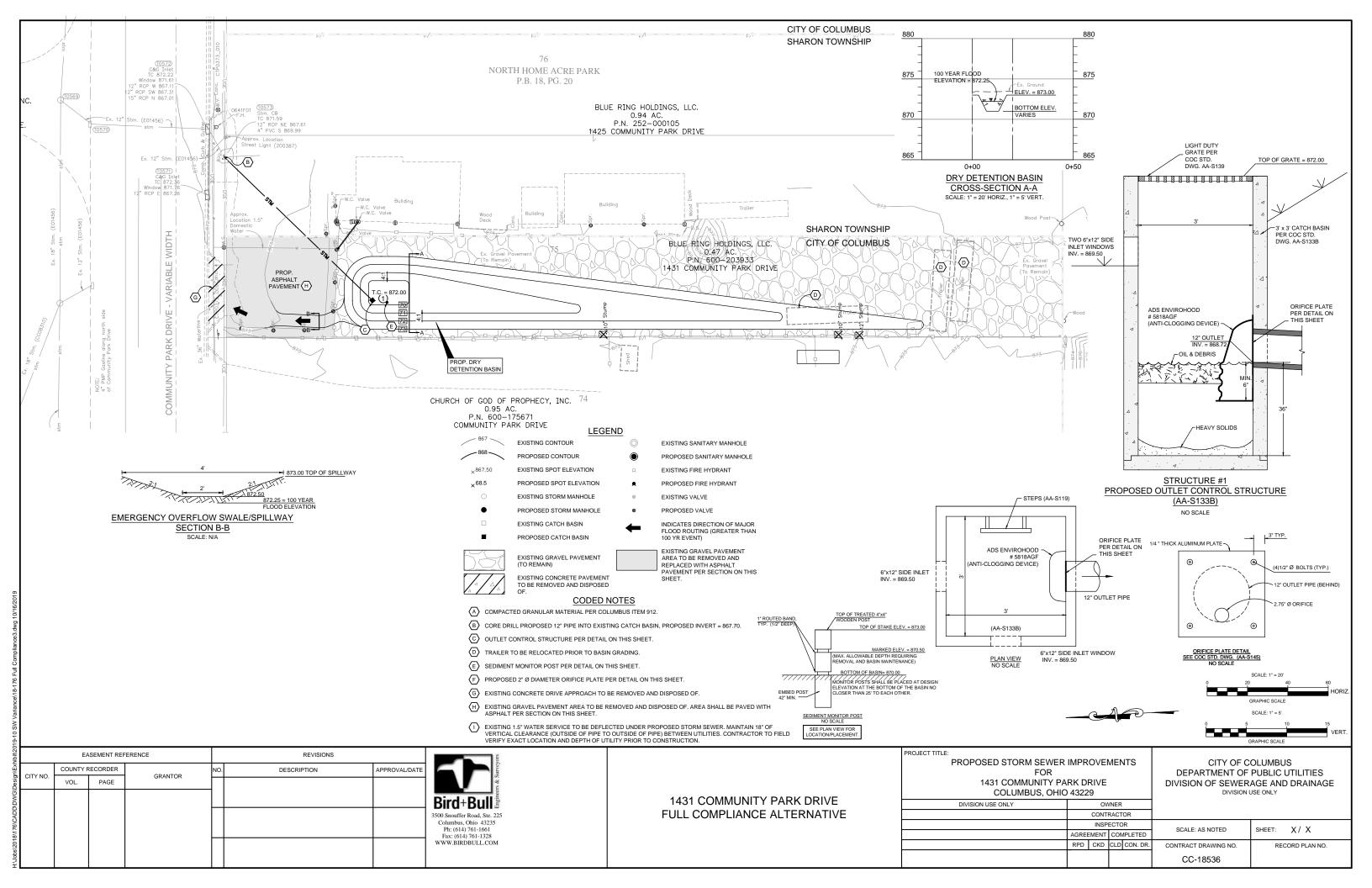
The current preferred alternative would be the construction of a lengthy, rectangular basin to run nearly the entire length of the parcel. With 2:1 slopes, the basin could maintain a consistent width the entire length without heavily sacrificing volume or usable surface area. By minimizing the surface area and maximizing slopes (with a bottom 1% transverse slope), the usable surface area in the parcel is maximized with minimal impact. Additionally, the length of the proposed basin allows for proper drainage with minimal storm sewer infrastructure required. The proposed basin will allow for adequate detention to meet the intent and purposes of the Columbus Stormwater Drainage Manual.

Although the preferred alternative basin would meet detention requirements and provide drainage without the necessity of additional storm sewer, the lengthy basin could cause potential hazards for maintenance as vehicles and equipment approach the basin. The side slopes of the swale will be vegetated with Euonymus Fortunei Wintercreeper "Coloratus" per CMS 659B. Straw blankets containing the seed mix shall be used to stabilize the side slopes until the vegetation has been established. The side slopes can be protected from vehicles with using concrete parking blocks spaced 3' apart.

To minimize the maintenance impacts of this configuration, the maintenance schedule for the basin will be increased. Sediment will be cleaned and removed from the basin twice a year. The outlet structure will be inspected on a monthly basis and any sediment and debris removed to ensure proper operation.

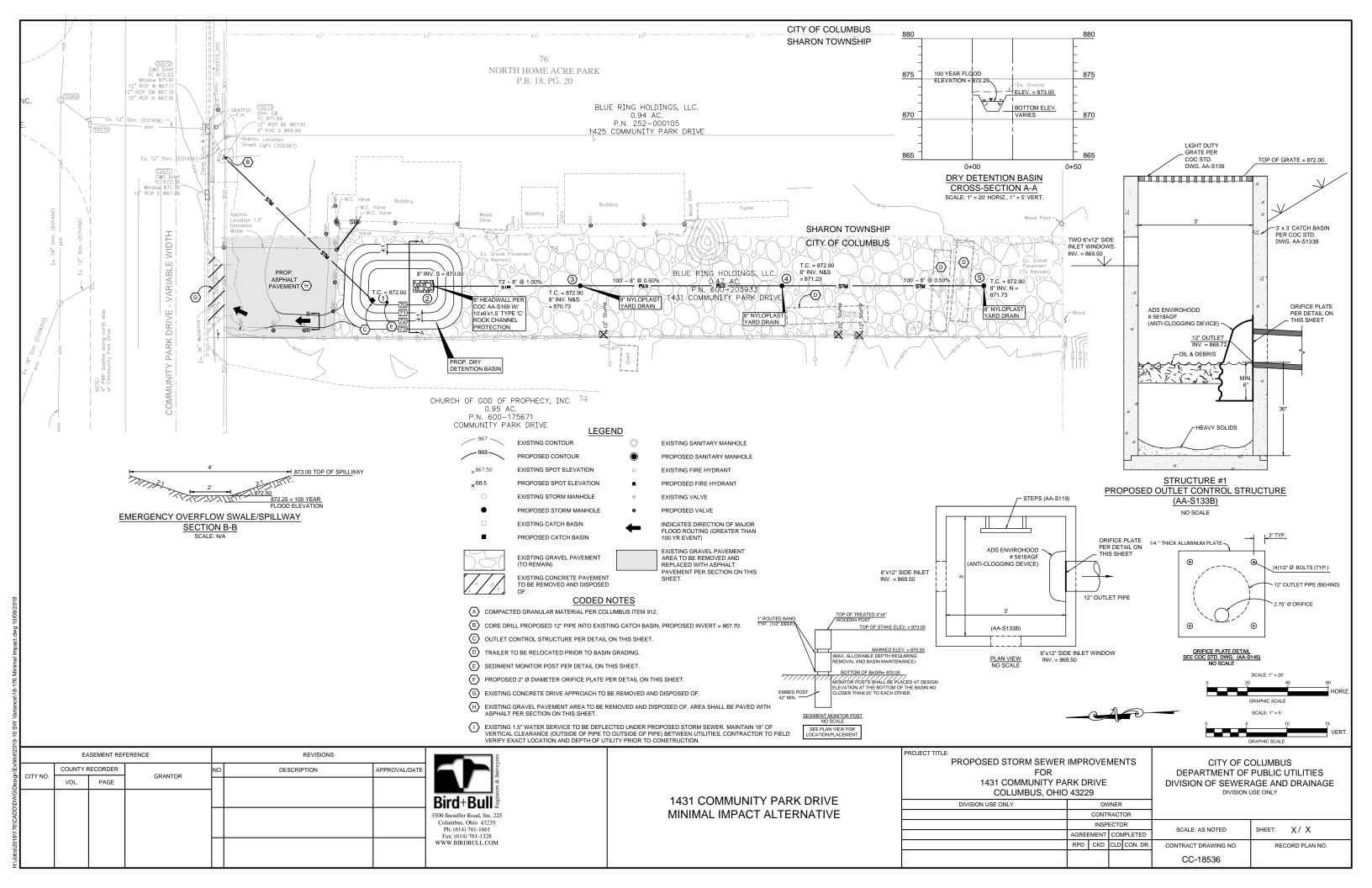
The preferred alternative remains the most cost efficient option with minimal infrastructure requirements and maximizing usable storage. On a unique site with existing width and length constraints, the 2:1 basin option remains the most efficient way to properly provide both drainage and detention.

# Appendix 1 FULL COMPLIANCE ALTERNATIVE SITE PLAN



## Appendix 2

MINIMAL IMPACT ALTERNATIVE SITE PLAN



# Appendix 3 PREFERRED ALTERNATIVE SITE PLAN

