

TABLE OF CONTENTS

1. Antidegradation Analysis.....	1
1.1 Project Description.....	1
Non Degradation Alternative (NDA).....	1
Preferred Degradation Alternative (PDA).....	2
Minimum Degradation Alternative (MDA).....	2
1.2 Avoidance.....	2
Off-Site Avoidance.....	2
On-Site Avoidance.....	3
1.3 Minimization.....	3
1.4 Magnitude of the Proposed Lowering of Water Quality.....	4
Streams.....	4
Wetlands.....	4
1.5 Technical Feasibility and Cost Effectiveness.....	5
1.6 Economic Considerations.....	5
1.7 Cumulative Impacts.....	6
1.8 Indirect Impacts.....	6
1.9 Construction Storm Water Management Plans.....	6
1.10 Post-Construction Storm Water Management Plans.....	7
1.11 References.....	7



1. ANTIDEGRADATION ANALYSIS

1.1 PROJECT DESCRIPTION

The Orange South project is a proposed commercial development located on the south side of Harvard Road, immediately east of the I-271 interchange, located in the City of Orange Village, Cuyahoga County, Ohio (i.e., the Site). The site is generally irregularly-shaped and situated within a commercially developed area, excluding the adjacent undeveloped property to the east. Harvard Road and an exit ramp from the I-271 interchange bounds the Site to the north and west, respectively. To the south is an existing commercial business complex.

Topography across the Site ranges from 1,175 feet above mean sea level (msl) to 1,130 feet above msl. The Site topography slopes gently south and toward the central portion of the property, which is occupied by a segment of Hawthorne Creek. A conservation easement was previously established along both banks of Hawthorne Creek within the limits of the Site and consists of approximately 12.5 acres. Hawthorne Creek flows south across the Site. Existing gas and electric utility easements cross the western portion of the Site and are oriented in a north-south fashion, parallel to I-271/Harvard Road exit ramp. A gravel/dirt road also existing in the central portion of the Site, east of the Hawthorne Creek, beginning at Harvard Road and extending south to the southern boundary. It is suspected that at least portions of the Site were historically used for agricultural purposes. The current Site habitat is generally comprised of secondary-growth deciduous forest and some scrub-shrub areas; however, the western portion of the Site was previously cleared by others and is mostly open meadow habitat. The Site is located within the Cuyahoga River watershed (HUC# 04110002), part of the 12-digit Tinkers Creek watershed (041100020504).

A total of 13 wetlands (Wetlands A through N) totaling 8.72 acres were delineated across the property. The wetlands range in size from 0.02 (Wetland K) to 2.45 acres (Wetland B). In addition to wetlands, a total of three headwater streams (Stream 1 through Stream 3), ranging from 121 linear feet (LF) to 360 LF, were also delineated on-Site. The on-Site streams generally exhibit ephemeral and intermittent flow characteristics. A segment of Hawthorne Creek also drains through the central portion of the site, which measures 3,859 LF and is situated within an existing conservation easement (12.5 acres) that extends along both sides of this perennial stream and contains previously delineated floodplain wetlands. The amount of wetland acreage located within the conservation easement, as determined by others in the 1990s, is approximately 1.89 acres. Combined, the entire Site is estimated to consist of approximately 10.63 acres of wetland habitat and approximately 4,367 ft of stream.

As presented in the 404 public notice, the applicant originally planned to develop approximately 56 acres of the site in two phases. The two phases included the northern and western portions of the property and comprised of a mixed-use development that included a proposed office park, in addition to the hotel and restaurant businesses. The cumulative wetland impacts totaled 7.07 acres and 757 LF of stream under the preferred development plan. Due to comments that were received during the Section 404 public notice period, as well as input from the Corps, the applicant subsequently elected to limit proposed development plans to only the northern portion (14.4 acre) of the site, which represents the non-speculative portion of the project. Thus, the revised 14.4 project area, limited to the northern portion of the property (the Site), is presented below under the three alternatives.

Non Degradation Alternative (NDA)

The NDA is defined as an on-site alternative design that avoids all wetlands and other waters of the U.S. identified on the Site. Due to the irregular Site shape, limited access constraints at the existing traffic signal on Harvard Road, and spatial distribution of the wetlands, no proposed development can occur, other than an approximate 200-ft cul-de-sac road and stormwater pond located between Wetlands L and I/J. No alternate Site access locations are available. As a consequence, the NDA is clearly not considered a practical alternative for the Applicant.

Preferred Degradation Alternative (PDA)

Under the PDA approach, the Applicant presents the most-efficient land use of the Site from the perspective of providing the highest economic return on the development, plus incorporates optimal constructability techniques. In summary, the Site will consist of two new restaurants, ranging in size between approximately 6,240 ft² and 10,970 ft², and associated parking areas along the frontage of Harvard Road. To the south of the restaurants will be a new, 9-story, 170-room hotel site. Highway visibility off I-271 is a critical factor for the economic performance of the proposed hotel owner, which in turn is expected to compliment the business activity at the adjacent restaurant businesses. A proposed road will be constructed along the east boundary of the Site, at the existing traffic signal on Harvard Road. A shared stormwater management facility will be constructed in the southernmost portion of the site. A second (smaller) stormwater basin will be constructed for the access road. The total wetland impact under the PDA is 1.79 acres.

Minimum Degradation Alternative (MDA)

The MDA is presented as the alternative project design that meets the Applicant's minimum economic return criteria and limits wetland impacts to the extent possible. The MDA consists of the same development objectives as the PDA, except that it entails increased construction costs necessary to revise grading in the southern portion of the Site and an added retaining wall to minimize impacts at Wetlands A and N. By doing so, wetland impacts under the MDA are reduced to 1.72 acres. The MDA is considered the least environmentally damaging practicable alternative (LEDPA).

1.2 AVOIDANCE

Off-Site Avoidance

An off-site analysis was completed for this application to determine if an alternate location could be used to meet the overall purpose and needs of the project. In accordance with OAC 3745-1-50(A), the following site screening criteria was selected for this analysis in order to determine whether or not one or more of the off-site locations represents a practical alternative: property size, proximity to target market, highway visibility and access, zoning compatibility, and environmental factors. Four potential off-site locations were identified. Alternate Sites #1 and #2 are located east of I-271. Alternate site #1 is located on the east adjacent property. Alternate Sites 3 and 4 are located to the west of the I-271 and Harvard Road interchange.

Alternate Site # 1

Alternate site #1 is located adjacent to the current project Site to the east, sharing a common boundary running north to south. Based upon OBG's desk-top review, this location meets only two of the initial site screening criteria conditions (i.e., size and proximity to the target market). However, several mapped wetlands are shown at this location according to the USFWS National Wetland Inventory (NWI) map, and a significant percentage of the on-site soils (i.e., Condit silty clay loam [Ct] and Mahoning silt loam, 0 to 2% [MgA]) are poorly-drained and/or typically exhibit a shallow water table, according to the NRCS Lorain County Soil Survey. Additionally, OBG observed significant wetland vegetation in the western portion of alternate site #1 during the wetland delineation survey. Based on field observations and current aerial photography, alternate site #1 is primarily forested. It is therefore reasonable to conclude that this location likely contains a large percentage of wetlands that would be impacted based upon development needs of the Applicant's project. Consequently, alternate site #1 is not considered to represent a practical alternative in this instance due to the lack of highway visibility, inadequate zoning, and equivalent or greater wetland impacts.

Alternate Site #2

Alternate site #2 is located to the southeast of the Applicant's Site, between Highway 422, Emery Road, and Brainard Road. Based upon OBG's desk-top review, this location generally contains only two of the initial site screening criteria referenced above, lacking adequate accessibility and zoning. Further analysis of this location from the perspective of environmental factors revealed two moderate to large-sized, mapped wetlands on-site, according to the NWI map, plus a segment of Hawthorne Creek drains across the western portion of the site. Additionally, several of the NRCS-mapped soil units contain hydric characteristics (somewhat poorly drained

and shallow water table), suggesting that other wetlands may also exist. Habitat is generally forested, so the possibility also exists that T&E concerns may be present. Therefore, the Applicant's project needs at this location would likely result in, at a minimum, similar natural resource impacts, as well as other potential environmental factors.

Alternate Site #3

Alternate site #3 is located close to a mile west of the I-271 and the Harvard Road interchange. It is part of the Highland Hills portion of Chagrin Highlands. Based upon OBG's desk-top analysis, this location is comprised of a mix of open meadow, scrub-shrub, and forested habitat. It meets three of the four initial site screening criteria (i.e., size, target area proximity, and zoning), but does not provide the highway visibility or access characteristic, which is a critical project needs condition. Additionally, the previous Chagrin Highlands wetland study that included this location identified three streams (S10, S11, and S12) and wetlands at this location. The above resources are protected under a conservation easement. A joint economic development agreement has not been completed between Highland Hills and the City of Cleveland, which currently limits opportunities to develop this property. Therefore, based upon political constraints, the lack of highway visibility, and the assumption that the project design requirements would result in wetland and stream impacts, in comparison to the PDA, alternate site #3 is not considered a practical alternative.

Alternate Site #4

Alternate site #4 is located in the same vicinity as alternate site #3, but located on the north side of Harvard Road. It is also part of the Beachwood West portion of Chagrin Highlands. Similarly this location meets only three of the four initial site screening criteria, and lacks the highway visibility, an accessibility characteristic. Moreover, this area was previously delineated and determined to contain several headwater stream segments and floodplain wetlands, all of which have been preserved as part of a conservation easement that was previously established. It can be assumed that the project design requirements would result in similar wetland and stream impacts as the preferred project Site. For the above reasons, alternate site #4 is not considered to be a practical off-site option.

On-Site Avoidance

The alternatives analysis includes an evaluation of on-site avoidance of existing waters to determine if the site could be re-designed without impacting wetlands or streams. Due to the site access constraints and spatial distribution of several wetlands present at the Site, full avoidance is not a practical option, as demonstrated in the NDA plan. Furthermore, the project needs and development purpose at the Applicant's selected Site location are based upon a Purchase Agreement (PA) for the hotel and letters of intent (LOI) for both restaurants. Therefore the proposed plan under Phase 1 (PDA and MDA) represents a non-speculative project that has been significantly scaled-back and impacts reduced from 2.54 acres of wetland impacts to 1.72 acres, in comparison to the original Phase 1 PDA submitted in the 404 public notice application.

1.3 MINIMIZATION

Wetland impact minimization, as presented in MDA, was achieved by changing the grading plan and adding a retaining wall in the vicinity of Wetlands A and N. Both wetlands are located in the floodplain of Hawthorne Creek and provide flood water attenuation, buffer preservation, and other water quality benefits to an urbanized and impaired waterway. This minimization effort to decrease wetland impacts at both locations will increase site constructability costs to the applicant, but can be done while still meeting the project's economic objectives.

As previously discussed, the project plans have been significantly scaled-back in comparison to the original PDA and MDA options presented under the 404 public notice document. Specifically, Phase 2 plans proposed in the western portion of the property, which involved approximately 4.4 acres of additional wetland impacts, plus stream impacts including a crossing of Hawthorne Creek, have been removed from the applicant's current design. Additionally, the southern extent of the proposed hotel and restaurant development was shifted north and two, smaller stormwater basin are now proposed to avoid 0.75 acres of Wetland I/J impacts. Combined, the

amount of wetland impact minimization between the initial PDA (404 public notice) and the current PDA (included herein) is approximately 5.3 acres, which represents a significant wetland impact reduction.

1.4 MAGNITUDE OF THE PROPOSED LOWERING OF WATER QUALITY

The following wetland impacts would result based upon the PDA and MDA plans. As presented, the MDA is considered the least-environmentally damaging practicable alternative (LEDPA) and is presented as the project of record.

Streams

No stream impacts will occur under the PDA or MDA plans.

Wetlands

A total of six wetlands are located within the current Site development limits. Under the PDA, impacts are planned for Wetlands A, I/J, K, L, M, and N. A general description of the wetland communities, as well as qualitative habitat assessment scores using the Ohio Rapid Assessment Method, Version 5.0 (ORAM), is presented below:

- Wetland A (0.14 AC) is a Category 1 (ORAM score of 28), low quality shrub-scrub/emergent wetland. Dominant vegetation consists of the invasive common reed (*Phragmites australis*). The PDA plan includes 0.14 acres of impact.
- Wetland I/J (2.20 AC) is a Category 2 (ORAM score of 48), low quality mixed forested and understory emergent wetland habitat. Wetland I/J is a wetland complex that originally consisted of two, separate wetlands (Wetland I and Wetland J) that were later combined at the request of the USACE during the jurisdictional determination review period. Wetland I is dominated by red maple, green ash, glossy buckthorn (*Frangula alnus*), jewelweed (*Impatiens capensis*), and arrow-leaved tearthumb. Wetland J had dominant vegetation consisting of red maple, green ash, American elm, fowl mannagrass, fox sedge, and soft rush. The PDA plan includes 1.33 acres of impact.
- Wetland K (0.02 AC) is a Modified Category 2 (ORAM score of 42), low quality forested wetland community dominated by red maple, green ash, fowl mannagrass, and soft rush. Wetland K is a small, common red maple, depressional wetland for the region that exhibits seasonal saturation characteristics. The PDA includes 0.02 acres of impact.
- Wetland L (0.14 AC) is a Modified Category 2 (ORAM score of 42), low quality, forested wetland community dominated by red maple, green ash, and fowl mannagrass. Similar to Wetland K, this wetland is a slight depressional area, common for the region that exhibits seasonal saturation characteristics. The PDA includes 0.14 acres of impact.
- Wetland M (0.10 AC) is a Modified Category 2 (ORAM score of 43), low quality, forested wetland community with vegetation dominated by red maple, green ash, and Japanese stiltgrass. This wetland is common depressional wetland for the region. The PDA includes 0.10 acres of impact.
- Wetland N (0.06 AC) is a Modified Category 2 (ORAM score of 36) non-forested wetland dominated by fowl mannagrass and Japanese stiltgrass. Similar to the others, Wetland N is situated within a slight depression along Hawthorne Creek. Hydrology is comprised of seasonal saturation and occasional flooding from Hawthorne Creek. The PDA includes 0.06 acres of impact.

The MDA plan represents similar impact to the same wetlands described above, except that portions of Wetlands A and N (0.07 acres) will be avoided.

The wetlands to be affected by this project are low to moderate quality areas, as measured using ORAM methods, and are very common features present in other areas of the property and in the project region. The forested wetlands are comprised of an early successional strand of mostly young red maple trees. The two non-forested wetlands contain invasive species or herbaceous vegetation that is common to the region and present in other areas of the property, beyond the proposed project limits. For this reason, the project will not result in

the elimination or decline of aquatic life. The project will not have an effect on the economic value of the wetlands as it relates to recreation, tourism or other use and enjoyment by the public.

1.5 TECHNICAL FEASIBILITY AND COST EFFECTIVENESS

The technical feasibility of implementing wetland impact avoidance at Wetlands A and N, as presented in the MDA, involves modification to the PDA grading plan in the western portion of the Site, as well as design and installation of a retaining wall near Wetland N. The proposed retaining wall is expected to be constructed using suitable mason-block wall materials and an artificial drainage system to relieve hydrostatic pressure behind the wall system. Initial cost associated with retaining wall design and construction costs are expected to be approximately \$50,000 to \$75,000. Long-term maintenance costs are not expected to be significant, provided the retaining wall is installed properly. No additional technology or operational costs are anticipated for the project.

1.6 ECONOMIC CONSIDERATIONS

The Project Site is in Orange Village, in the eastern part of Cuyahoga County and part of the Cleveland Metropolitan Statistical Area (MSA). The 2010 Census ranked Greater Cleveland as the 29th **most populous metropolitan area** in the United States and **largest metro entirely in Ohio** with a population of 2,077,240. In addition to Cuyahoga County, the Cleveland MSA also includes Summit, Lake, Geauga and Lorain Counties. Cuyahoga County is the most populous within the MSA with a population of 1,280,122 as of the 2010 Census.

The overall unemployment rate for the Cleveland MSA is 3.9% as of December 2015 per the U.S. Bureau of Labor Statistics. For Cuyahoga County the unemployment rate is slightly higher at 4.0%.

The median income for a household in Cuyahoga County was \$43,603, and the median income for a family was \$58,631. The per capita income for the county was \$26,263. About 10.30% of families and 13.10% of the population were below the poverty line, including 19.40% of those under age 18 and 9.30% of those age 65 or over.

Major employers include The Cleveland Clinic, University Hospitals, Progressive Corporation, Swagelok, Sherwin-Williams, Lincoln Electric, Case Western Reserve University and Giant Eagle. The largest employment sectors are 1) Education and Health Services, 2) Trade, Transportation and Utilities, 3) Government and 4) Manufacturing.

The Project includes an 11,000 square foot restaurant, a 5,730 square foot restaurant and a 170-room select service hotel. Economic impact are estimated as follows:

Temporary (Construction-period) Impacts:

Temporary (construction-period) Direct Jobs = 184
 Temporary (construction-period) Indirect Jobs = 106
 Temporary (construction-period) Direct Payroll = \$11,362,000
 Temporary (construction-period) Indirect Payroll = \$5,036,000
 Temporary (construction-period) State/Local Tax Revenue = \$817,700

Permanent Annual Impacts:

Permanent Direct Jobs = 263
 Permanent Indirect Jobs = 99
 Permanent Direct Payroll = \$6,306,000
 Permanent Indirect Payroll = \$4,673,000
 Permanent State/Local Tax Revenue = \$1,612,800

The Project will enhance the local economy by providing employment opportunities and the tax revenue estimated above.

1.7 CUMULATIVE IMPACTS

Previous watershed impacts occurred in the 1990s and 2000s to the west and northwest of the Site, west of I-271, and were associated with commercial and retail development of the Beachwood East and Warrensville Height areas, part of the Chagrin Highlands development. On-site permittee responsible wetland and stream mitigation was successfully completed at both locations, under appropriate Section 404/401 permits. Additionally, closed storm sewers were included along the Harvard Road frontage improvements to drain adjacent portions of the Harvard Road, Orange Place, and Pinecrest right of way along with some of the adjacent land areas to the north. This system discharges through open and closed drainage systems in the ODOT right of way at the NB I-271 ramps into Hawthorne Creek. Combined, these previous improvements have affected water quality conditions to Hawthorne Creek.

However, the Site development plan does not involve any impacts to Hawthorne Creek or the other headwater tributaries delineated on the 78 acre property. Additionally, the existing 12.5 acre conservation easement will remain unchanged and unaffected by the project, meaning the forested and wetland buffers along both sides of the approximate 3,800 LF segment of Hawthorne Creek within the property limits were remain intact. The proposed project impacts primarily involve non-riparian, low to moderate quality (depressional) wetlands situated near the upper 150-foot segment of Hawthorne Creek. The limits of the conservation easement in the immediate vicinity of the project will not be compromised by the project; therefore, minimal adverse effect to Hawthorne Creek and the Tinkers Creek watershed is expected.

OBG is unaware of any other proposed impacts planned in the project vicinity or watershed.

1.8 INDIRECT IMPACTS

Indirect impacts to wetlands on the project site are expected to be minimal. The majority of the wetland impacts (1.59 acres of the 1.79 acres, (89%) under the PDA) will occur within slight depressional areas surrounding by upland habitat. Only Wetland I/J is hydrologically connected to a portion of the same wetland that continues off-site and further to the south. However, hydrology to the unaffected portion of Wetland I/J (0.87 acres) is separate from the project area and generally originates from the adjacent property to the east. Surface drainage in this area is to the west, towards Hawthorne Creek. As previously discussed, this wetland was originally delineated and characterized as two separate wetlands, which were later merged during the JD review process. It is for this reason that OBG does not anticipate a change wetland hydrology or other indirect impacts to the remaining portion of this wetland.

Only Wetlands A and N are located within the riparian buffer of Hawthorne Creek; however, both are 0.10 acres or less in size, contain invasive species, and provide limited function to the watershed. The overall surface grade proposed in the project area will be unchanged and will continue to slope to the south/southwest, in the vicinity of the two stormwater basins. No indirect impact is anticipated to Hawthorne Creek and the existing conservation easement will not be altered by the project.

1.9 CONSTRUCTION STORM WATER MANAGEMENT PLANS

Stormwater management planning will incorporate Best Management Practices (BMPs) and other techniques necessary to maintain compliance with the federal Water Pollution Control Act, Ohio Water Pollution Control Act, and City of Orange Stormwater Management Ordinances for stormwater discharges associated with construction activity. Stormwater management planning will address issues related to both water quantity and quality (Phase II NPDES requirements). The Site development work is expected to occur in a single phase. A detailed stormwater pollution prevention plan (SWPPP) is not currently available at this time; however, it will be completed prior to onsite construction activities. These plans will incorporate non-structural preservation practices, erosion prevention practices, sediment controls, and ongoing maintenance plans. During initial site construction activities, the two stormwater basins shown in the southern portion of the site will be installed. Surface water will drain to the south and east. The southernmost stormwater basin will drain slowly into Hawthorne Creek.

1.10 POST-CONSTRUCTION STORM WATER MANAGEMENT PLANS

Closed storm sewer systems will be constructed for the Phase 1 development. Runoff will be conveyed to a shared stormwater management pond, located in the southern portion of the site. The stormwater management system will be designed to meet current Ohio EPA NPDES permit requirements and Orange Village ordinances to address runoff quantity and quality criteria before discharging runoff to Hawthorne Creek.

A separate storm sewer system will be constructed for the new access road located along the east side of the site. Stormwater from the road will be conveyed to the smaller stormwater management pond, outside of the right-of-way and south of the hotel.

1.11 REFERENCES

Mack, John J. 2001. *Ohio Rapid Assessment Method for Wetlands v. 5.0. User's Manual and Scoring Forms*. Technical Report WET/2001-1. Ohio Environmental Protection Agency Division of Surface Water, Wetland Ecology Unit, Columbus, Ohio.

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