GRAND COMMUNITIES, LLC.
A Fischer Group Company

Received by
City of Grove City
04-24-20

April 24, 2020

Jimmy Hoppel
The City of Grove City
4035 Broadway
Grove City, Ohio 43123

Dear Mr. Hoppel:

Subject: Farmstead Sub-Area H - Final Development Plan

Grand Communities, LLC. (GCL) is pleased to submit revised plans of the above referenced project for your review. The comments provided by Grove City dated April 16th, 2020 have been addressed with this resubmittal. The plan updates are based on GCL's review of the comments and coordination with staff.

Below is a summary of how each comment has been addressed and attached are the requested revised plan sets.

Site Layout

1. Staff still has concerns regarding the eyebrow roadway. It is staffs suggestion that the eyebrow roadway be removed, and that lots 85, 86, and 87 front Honeyfarm Way.
   The eyebrow roadway has been removed.

2. Staff suggests, following comment #1, that a rear portion of lots 85, 86, and 87 could be absorbed into the adjacent Reserve.
   The lots have been adjusted accordingly.

3. Provide a walking path around the entire perimeter of the wet basin pond.
   The wet basin will have a path around the northern and southern sides and will tie into the trail along Jackson Pike in two different locations. Currently there is not enough room to get a second trail between the pond and Jackson Pike Mounding.

4. If the eyebrow roadway remains, it appears as if a fire truck will not be able to stay within the road. Please modify accordingly.
   The eyebrow roadway has been removed.

3940 Olympic Blvd, Suite 100
Erlanger, KY 41018
859.341.4709 *fax* 859.344.7000

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Landscaping

5. Please correct Comment #21 of the General Landscape Notes on page C700 to state the exact same wording as Individual Parcel note #7, which is correct as written.
   All general notes have been updated and are now similar on both pages C700 & C702.

6. Tree Preservation fencing and signage should be installed along the West and South property lines to protect the current wood areas.
   This will be protected by silt fence once construction documents are produced.

7. Tree Planting Typical on page C701 still states that 4" (inches) of shredded bark mulch is to be used. This should be corrected to state 2-3" (inches).
   All details have been updated; Refer to sheet C701

8. Please provide a landscaping detail for landscaping that will be provided around the base of each CBU.
   A typical detail for the CBU jas been added on sheet C701, and is consistent with the Farmstead Development.

9. An updated version of Note #1 of Individual Parcel Note still requires correction. Pages C700 and C702 are not consistent, as note #1 for The Individual Parcel notes; page C702 lists as #2.
   All general notes have been updated and are now similar on both pages C700 & C702.

10. All lots appear to be large enough to have 3 trees planted on them (street trees do not go towards this count, they are in addition to the 3 required per lot). Please state the lots you feel are not large enough for 3 trees and then show on landscape plan where these trees would be planted in the open area by labeling them with the associated Lot #.
    The Individual Parcel Note #2 has been corrected to indicate all 3 trees shall be planted on the Lot. Min. 1 tree in the front yard.

Photometric Plan

11. Please adjust the lighting layout of add a pole at the entrance of Subarea H to improve lighting at the entrance and crosswalk.
    A light has been added by Lot 87.

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12. Please provide uniformity requirements including minimums and maximums. The degree to which 0.0fc is currently displayed is not currently acceptable.
    The Lighting Statistics table has been added including these items. In addition, the lighting spread accuracy has been increased to the hundredth.

13. Street lights should alternate sides of the streets.
    In order to remain consistent with the rest of the development, lighting has not changed to alternate sides of the street.

Utilities

14. If eyebrow roadway does remain, please confirm the routing for water service for lots 86 and 87 through the eyebrow.
    The eyebrow has been removed.

15. Please confirm whether manholes will be placed in driveways or not.
    Manholes will not be placed in driveways. A note has been added to the Grading and Utility sheet as well.

Stormwater

16. In response to comment #23 in the previous comment letter, a permit was provided to remove the wetland. Staff would prefer to see the wetland show on the plans with a note that it is “to be removed”, rather than left off all together.
    The Wetland is now shown on the Existing Conditions and Demolition Plan and the Grading & Utility Plan sheets as “to be filled”.

17. In Basin Z Discharge Table they report the total proposed release rates and WSE. The spillway for this basin discharges to the east to Culvert A. Please clearly show and document the allowable release rates to Culvert A and the proposed release rate to Culvert A. Based on the HydraCAD output there is no issue but currently this is not tracked within the narrative.
    An additional column has been added noting spillway discharge. This is noted as the “Secondary device” on the PB-Z node within the stormwater report.

18. On page 7 of the Stormwater Report please change City of Columbus to City of Grove City.
    This has been revised.

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19. It appears the pond will be at least partially obscured from SR104. Without a more detailed exhibit it is difficult to say how obscured the pond will be. Please either update the design to meet Tier 1 landscape and hardscape standards outlined in the Stormwater Design Manual, or provide a sight distance exhibit that shows that no portion of the pond will be visible from SR 104.

    The Basin has been changed to include a combination of Tier I and Tier II requirements.

Building Architecture

20. Please remove the following models as options as they do not meet the minimum square footage requirements outlined in the development text: “Danville” and “Harper”.

    The models were left in and the minimum square footage was removed. There are options that can be added for the above noted models that would meet the required minimum square footage as noted in the Development Text.

Development Text

21. The following sections appear to be missing from the development text. Please include the following sections: (1) Accessory uses, (2) Fencing, (3) Landscape Materials, (4) Pedestrian/Multiuse Path Lighting, (5) Streams and Wetlands.

    The Sections have all been added to the development text and are consistent with the Farmstead Development.

22. On page 2, please update the number of units permitted to the number of lots being proposed (87).

    The Development Text has been updated to reflect 87 sites.

23. Provide an example detail of landscaping for high impact sites (specifically cul-de-sac) on the plan sheets.

    An example is shown on the plans. Also, the Development Text has been updated to include the cul-de-sac areas as high impact areas.

24. I(F)(b) – add language that “no parking” signage will be posted and either make a note or identify location on the plan sheets.

    A signage note is shown on the Site Plan Sheet.

25. Please change the wording in the Open Space section (G) – discussion on who owns and maintains open spaces should occur during the PLAT review and not the Development Agreement. The initial Farmstead development warranted an agreement to work out issues like the school site and other big-picture items, but will not be utilized in this case.

    The wording in the Development Text has been updated.

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26. Section I (Sidewalks and Paths) (c) – states the Final Development Plan shall be generally consistent with the final development plan. Please revise to state "…consistent with the approved development plan for the Farmstead development..."

    The wording in the Development Text has been updated.

27. Section K(a)ii (Roadway Lighting) should also state that the street light spacing shall match the larger Farmstead Development.

    The wording in the Development Text has been updated. This is now found in Section L.

28. Fire department access roads Please correct the following typographical errors:
    a. Incorrect Project Name on Project Narrative
    b. Section I(B)(d) = inconsistent text and numeral
    c. Section I(E)(b) =remove highlighted sentence
    d. Section I(L)(a) = should be "determined"

    The Project Narrative is included within the Development Text PDF. Also, the other typos and formatting have been updated as requested.

We appreciate the opportunity to provide the revised plans for the proposed Farmstead development. If you have any further questions or need additional information, please contact me at 570-492-8370 or via email at awebb@fischerhomes.com.

Sincerely,

Amanda Webb
Project Planner
Grand Communities, LLC.

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Erlanger, KY 41018
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City of Grove City, Ohio
Project Narrative and Development Text

Farmstead

May 5, 2020

Applicant:
Grand Communities, LLC.
Contact: Jason M. Wisniewski
3940 Olympic Boulevard, Suite 100
Erlanger, Kentucky 41018
(859) 344-3136

Project Engineer:
Civil & Environmental Consultants, Inc.
Contact: Tim Volchko, P.E.
250 Old Worthington Bridge Road, Suite 250
Worthington, Ohio 43085
(614) 540-6633

Farmstead Planned Unit Development (PUD)

Application Index:

The following are included herein as part of the required items:

1. **Project Narrative**

2. **Zoning Text**

3. **Exhibits/Appendix**
    a. Exhibit A Product Offering Examples

FARMSTEAD SUB-AREA H – PROJECT NARRATIVE

Farmstead Sub-Area H is part of the Farmstead PUD, a residential master planned community located east of Hawthorne Parkway along Jackson Pike. The Farmstead PUD is a modern farmhouse-themed community that consists of various single-family detached residential housing products, active and passive open spaces, and a proposed school (elementary). Sub Area- H is a continuation of the master planned community of Farmstead.

Sub-Area H offers a secluded neighborhood, yet affords residents with easy access to the amenities of the Farmstead PUD. The Farmstead PUD includes numerous active and passive open spaces throughout the community, and includes a central amenity center. All residents of Sub-area H will have access to the amenity center – owned and maintained by a mandatory Homeowners Association.

Homes in Sub-Area H include ranch and two-story designs that are efficient, functional, and open, with exteriors that range from traditional to modern farmhouse styles. In addition to architectural styles, home buyers have the opportunity to customize their exterior through a wide, natural color palette that adds diversity and individuality throughout the neighborhood.

Not only does Farmstead value architectural diversity and land preservation, it also values sustainability. The narrow lot design significantly-reduces initial infrastructure investment and long-term maintenance costs when compared to traditional subdivisions. The design also allows for a minimal amount of homesites (six) to have a side view of Jackson Pike, as opposed to several homes backing to Jackson Pike. This design promotes the rural character along Jackson Pike and allows for a stepdown transition to the east.

FARMSTEAD SUB-ARA H – DEVELOPMENT TEXT

Farmstead Sub-area H is part of the Farmstead Planned Unit Development (PUD) totaling approximately two hundred six (206) acres located along the west side of Jackson Pike and east of Hawthorne Parkway. Sub-Area H which consist of approximately 20 acres allows for single-family and attached residential.

Unless otherwise specified in the submitted drawings or in this written text, the development standards of Part Eleven – Planning and Zoning Code of the Codified Ordinances of the City of Grove City (Local legislation current through 12-4-17) shall apply. Basic development standards are compiled regarding the proposed density, site issues, traffic, circulation, landscape, and architectural standards. These component standards ensure consistency and quality throughout the property's development. The General Development Standards are as follows:

I. GENERAL DEVELOPMENT STANDARDS

A. Permitted Uses:

   a. Single-family detached residential dwellings.

B. Density and Bulk Standards - There shall be a maximum of eighty-seven (87) single-family detached dwelling units. Minimum development standards for each sub-area are as follows:

Sub-Area	Minimum Lot Width	Minimum Front Setback	Minimum Side Setback (Interior lot)	Minimum Side Setback (Corner lot)	Minimum Rear Setback	Minimum Lot Size	Minimum Livable Floor Area
Sub-Area H	50'	25'	5'	10'	20'	6,000 sf	1,400 sq. ft. (ranch) 1,800 sq. ft. (two-story)

   a. Lot widths are measured at the front setback line shown on each lot as depicted by the Final Development Plan.

   b. Corner lot setbacks are measured from the right-of-way line (not front of lot line).

   c. Building separation shall be a minimum of ten feet (10') from building-to-building, and does not include shared walls internal to building.

   d. The maximum building height is thirty-five feet (35') from finished grade at the front of the home to the mid-point of the gable.

   e. Minimum floor areas exclude any non-livable areas (garage, basement and/or walk-out floor area).

   f. Individual lot front yard setback can exceed the specified minimum front yard setback.

C. Density:
   a. A maximum of eighty-seven (87) residential dwelling units are allowed.

D. Architectural Standards:

a. Farmstead is themed as a modern farmhouse community, and representative architecture planned for each sub-area as depicted on the Product Offering Examples (Exhibit A). Representative architecture provided in Exhibit A is for illustrative purposes only. The following architectural standards shall apply:

b. Color Palettes: A mixed color palette shall be utilized on home exteriors, as found in Exhibit A. A mixed palette on a single building should be carefully selected so that all colors are harmonious.

c. Exterior Materials: Permitted materials include the following:
   i. Brick and/or brick veneer.
   ii. Stone, cultured stone, and/or stone veneer.
   iii. Fiber cement board.
   iv. Stucco.
   v. Dryvit (EIFS).
   vi. Wood lap siding, composite lap siding, and cedar shake (painted or stained).
   vii. Vinyl siding with a minimum thickness of 0.044".

d. Home Mix:

   i. To prevent monotony there shall be no duplication of the same plan within one (1) homesite on the same side of the street or directly across the street. There shall not be a duplication of the same elevation diagonally across the street. Home mix guidelines will be consistent with the approved zoning text for the Farmstead PUD. Houses with the same or similar footprint may be allowed within this distance provided that such houses incorporate substantial differences in the front elevations such as material changes, configuration of front porches, etc.

   ii. Additional plans and/or elevations submitted after Final Development Plan approval by City Council shall be approved by the Development Director to allow for alterations based on changes and selections over time, so long as they are consistent with the quality, character and proportions of the building elevations approved with the Final Development Plan, subject to the standards of this Development Text.

e. Exposed Foundations: There shall be no exposed, unfinished wall or porch foundations. All exposed foundation concrete or block must be finished with one of the following: brick, veneer brick, stone, cultured stone designed by the manufacturer for at-grade or below-grade installation.

f. Roofs:

   i. The main roof pitch for single-story residences shall be a minimum 5:12. The main roof pitch for 2-story residences shall be a minimum of 6:12.
   ii. Extruded aluminum gutters with downspouts are allowed.
   iii. Roofs shall be finished with dimensional asphalt shingles, cedar shake shingles, or slate or a combination thereof.
   iv. Roof overhangs shall be a minimum of eight inches (8") on the front and rear.

g. Windows and Doors: Vinyl windows and vinyl-coated or aluminum clad wood window and door frames are permitted.

E. Garages, Driveways, and Parking:

a. A minimum two-car attached garage (400 square feet) is required for all dwelling units.

b. Front-entry and side-entry garages are permitted. Carriage-style garages are considered side-entry.

c. No more than three (3) garage bays may face the street on front-entry garages; however, in no instance shall a three-car garage have door openings facing a public street exceed 45% of the width of the house façade, including the garage.

d. Driveways shall be a maximum of eighteen feet (18') at the right-of-way, and shall be setback a minimum of one foot (1') from all side property/lot lines.

e. Driveways shall be constructed of concrete or decorative pavers.

f. All homes shall have a sidewalk connecting the driveway or street to the front door of the home.

F. Accessory Uses:

a. Above-ground swimming pools are prohibited. In-ground swimming pools and hot tubs/spas are permitted so long as they conform to all City Codes.

b. All trash, garbage or other rubbish shall be kept in each owner's garage, except on the days which the trash, garbage or other rubbish is collected, per Code Section 725.07.

G. Streets and Circulation - Interior street patterns, exterior road connections/intersections, and proposed street cross-sections shall be generally consistent with depictions on the Final Development Plan. The intent of the roadway network is to mimic the character of existing area roadways and maintain a rural character along Jackson Pike. In addition, the following standards shall apply:

a. Streets on the site shall be constructed and laid out based on the Final Development Plan

b. Streets proposed at twenty-eight feet (28') in width shall only permit parking on one (1) side, and streets that are narrower shall have no on-street parking and will be identified with "No Parking" signage consistent with the Final Development Plan.

c. Streets shall have a minimum of a fifty foot (50') right-of-way.

H. Open Space - Open space shall be generally consistent with depictions on the Landscaping Plan included in the Final Development Plan. However, open space calculations on final engineering/plats may vary from calculations provided herein without approval from the City Planning Commission and/or City Council, provided that it meets the requirements of Section 1101.9(b) of the Grove City Code. In addition, the following standards shall apply:

a. All open spaces, including stormwater detention/retention ponds, shall be owned and

maintained by the Homeowners Association unless determined otherwise the plat review process. Open spaces will be deeded to the Homeowners Association, and transfers will occur in phases after the open spaces are developed.

b. Entry features, fencing, walls, signage, columns/piers, fountains, and related landscaping and lighting are permitted within open spaces, only to the extent that the areas are still usable for residents as either active or passive open space.

I. Landscaping, Buffering, and Screening - Landscaping, buffering, and screening shall be in general conformance with the Landscaping Plan. In addition, the following standards shall apply:

a. Any portion of a lot not occupied by a building, driveway, parking area, etc. shall be landscaped with lawn as a minimum.

b. Single-family lots shall contain at least three (3) trees and five (5) shrubs as per Section 1136.09(a)(1).

c. In order to ensure good horticulture practices and healthy tree development, the relocation of said trees to open spaces in lieu of the homesite may be allowed. The location of the relocated trees shall be depicted on the plans and administratively approved.

d. High Impact Areas:

i. High Impact Areas will include items such as, but not limited to: additional landscaping, architectural elements, consistent with the Final Development Plan.

ii. High Impact Areas are as follows:
1. Homesites that are adjacent to the main entrance.
2. Homesites that are located on a corner lot.
3. Areas that are located at the end of a cul-de-sac and adjacent to Jackson Pike.

e. Tree Protection and Replacement:

i. Developer(s)/ Builder(s) shall make reasonable and good faith efforts to preserve existing healthy trees on-site during construction.

ii. Existing trees that are six inch (6”) dbh and larger in good condition to be preserved may be credited toward screen requirements with approval of the Development Department. Ash Trees regardless of condition shall be removed as directed by the City’s Urban Forester.

f. Street Trees:

i. Street trees shall be located along all streets within the Farmstead development and be spaced at a maximum of fifty feet for large class trees, forty feet for medium class trees and thirty feet for small class trees. In the case that trees die, street trees shall be replaced by the property owner for that parcel, if located outside of the right of way.

ii. Street trees shall vary in species to prevent a monoculture so long as they are in accordance with the City's planting list. Invasive plant species – as listed by the Ohio Department of Natural Resources (ODNR) shall be prohibited and the use of native plants will be encouraged. The amount and type of trees shall be approved by the City's Urban Forester.

iii. At time of installation, all street trees shall have a clear canopy height of at least five feet (5') above the ground for traffic safety purposes.

iv. The minimum distance between the tree and the back of the street curb shall be two and one-half feet. In the areas where a sidewalk exists or is proposed, the minimum distance between the tree trunk and both the edge of the street and the sidewalk shall be two feet.

v. The minimum trunk caliper measured at six inches above the rootball for all street trees shall be no less than two (2) inches.

g. Within the right-of-way of local streets and within any provided sidewalk and landscape easement the developer may install massings of ornamental shrubs, grasses, perennials, or rain gardens, provided that they do not obstruct sight-distance at intersections, encroach upon pedestrian facilities, or obstruct pedestrian visibility, and subject to approval by the City's Urban Forester.

h. Landscape Materials:

i. All landscape/plant materials shall conform to the standards of the American National Standards Institute (ANSI) Z.60 and shall have passed any inspection required under state regulations.

ii. Invasive plant species – as listed by the ODNR – are prohibited within this PUD. The use of native species is encouraged.

iii. The minimum size requirements for plant material installed within the PUD are as follows:

1. Deciduous trees: two-and-one-half inch (2-½") caliper.
2. Evergreen trees: six feet (6') height.
3. Ornamental trees two-inch (2") caliper.
4. Evergreen and deciduous shrubs used for screening purposes: thirty-six inch (36") height at the time of installation and spread.
5. All other evergreen and deciduous shrubs: either eighteen inch (18") or twenty-four inch (24") in height depending on their placement per Section 1136.09(a)(1).

i. Screening - Mounding shall be provided along Jackson Pike, in general conformance with the Final Development Plan. In addition, the following standards shall apply:

i. Mounding shall range in height from a minimum of four feet (4') to eight feet (8').

ii. Mounding slopes may range from 3:1 to 10:1.

iii. The surface of any mound shall be planted in turf grass at a minimum. Planting on the mound per code requires a double staggered row of evergreen trees at a minimum six foot (6') height and maximum twenty foot (20') spacing, one (1) minimum two inch (2") caliper small class tree, and two (2) minimum eighteen inch (18") height deciduous shrubs per forty feet (40') of property line area to be planted.

iv. Mounding shall vary in height and slope to create a rolling, natural appearance.

v. Mounding shall be located outside the public right-of-way and shall not obstruct site distance at any driveways or public intersections.

i. Fencing - All fencing must be decorative in nature.

i. All fences and/or enclosures must be approved in writing by the Homeowners Association prior to installation.

ii. No wood privacy ("stockade") fencing shall be utilized on site.

iii. Chainlink fences are not permitted within the Farmstead Development.

J. Sidewalks and Paths - All sidewalks and pathways – as depicted on the Final Development Plan – shall be installed by the Developer(s) and/or Builder(s), unless otherwise agreed to with the City. In addition, the following standards shall apply:

a. Each street shall have a path and/or a sidewalk on each side. Sidewalks may be replaced with a path.

b. Sidewalks and paths shall be a minimum of five feet (5') in width.

c. The final locations for the sidewalks and pathways through the open space as shown on the Final Development Plan shall be generally consistent with the final development plan for the Farmstead development and will be determined on the construction plans in order to balance aesthetic placement with construction feasibility, topographic features and/or existing vegetation.

d. Any pathways or sidewalks located outside of the right-of-way will be placed in an easement at the time platting.

K. Mechanical Equipment:

a. Utility meters and air conditioning equipment shall be located in the side or rear yards, and all such improvements should be located in a manner as to minimize offensive noises, odors, and/or appearances to adjoining properties.

b. All plumbing vents and roof ventilators shall be installed to minimize their appearance from the front. All plumbing vents or other roof appurtenances must be painted to match the roof color.

L. Lighting - Unless otherwise specified by the City's Codes, or agreed to with the City, the following lighting standards shall apply:

   a. Roadway Lighting:

      i. All lighting fixtures, posts, bases, arms, and accessories shall be in character and consistent with other area lighting fixtures in the Farmstead PUD.

      ii. Street lighting shall be provided throughout the site as shown on the final development plan and street light spacing shall be consistent with the Farmstead development.

   b. Landscape Lighting:

      i. Landscape lighting is permitted so long as it emanates from a concealed source.

      ii. All landscape lights shall be arranged to direct light away from exterior streets and/or adjacent properties.

      iii. Except for temporary holiday or celebratory purposes, colored lights are not permitted to illuminate building exteriors.

M. Mail Delivery - Mail delivery is intended to occur with cluster box units (CBUs) unless otherwise restricted by the United States Postal Service (USPS).

   a. CBUs shall be located in appropriate areas as determined by the USPS and City during the site construction process.

   b. All mailboxes or CBUs shall have a uniform and consistent design. These fixtures shall be decorative in appearance and shall match the quality and theme of other site fixtures within Farmstead.

   c. Landscaping shall be installed around CBUs as permitted by the USPS.

N. Home Owners Association (HOA) - A private, mandatory Master Homeowners Association (Master HOA) shall be established for the Farmstead Community. Sub-Area H shall be part of the Farmstead Master HOA.

O. Utilities - All utility lines internal to the development shall be placed underground, including water service, electricity, telephone, gas, and their connections or feeder lines. Meters, transformers, etc. may be placed above ground, but shall be discreetly located at the rear of lots, and screened from the street view.

P. Regulated Streams and/or Wetlands - All streams and wetlands shall be permitted and mitigated for in accordance with the rules and regulations of the United States Army Corps of Engineers (USACE), the Ohio Environmental Protection Agency (OEPA), and the Grove City Stormwater Design Manual.

FARMSTEAD

Product Offering Examples

Sub-Area H

(for illustrative purposes only)

FISCHER HOMES

BEACON

Maple Street Collection

welcome home.

Approximately 1413 sq ft

CAMBRIDGE COTTAGE
(WITH OPTIONAL BRICK)

designed by:

CAMBRIDGE COTTAGE

designed by:

COASTAL CLASSIC
(WITH OPTIONAL BRICK)

designed by:

COASTAL CLASSIC

designed by:

Images & Options Available at **fischerhomes**.com

Our Plans Include You

FISCHER HOMES

CUMBERLAND

Maple Street Collection

welcome home.

Approximately 2439 sq ft

COASTAL CLASSIC
(WITH OPTIONAL BRICK)

designed by:

AMERICAN CLASSIC
(WITH OPTIONAL BRICK)

designed by:

COASTAL CLASSIC

designed by:

AMERICAN CLASSIC
(WITH OPTIONAL BRICK & PORCH)

designed by:

Images & Options Available at **fischerhomes**.com

Our Plans Include You

FISCHER HOMES

DANVILLE

Maple Street Collection

welcome home.

WESTERN CRAFTSMAN
(WITH OPTIONAL BRICK & PORCH)

designed by:

AMERICAN CLASSIC
(WITH OPTIONAL BRICK)

designed by:

WESTERN CRAFTSMAN
(WITH OPTIONAL PORCH)

designed by:

AMERICAN CLASSIC
(WITH OPTIONAL BRICK & PORCH)

designed by:

Images & Options Available at fischerhomes.com

Our Plans Include You

FISCHER HOMES

DENALI

Maple Street Collection

welcome home.

Approximately 2957 sq ft

PACIFIC CRAFTSMAN
(WITH OPTIONAL BRICK & PORCH)

designed by:

AMERICAN CLASSIC
(WITH OPTIONAL BRICK)

designed by:

PACIFIC CRAFTSMAN

designed by:

AMERICAN CLASSIC
(WITH OPTIONAL BRICK & PORCH)

designed by:

Images & Options Available at **fischerhomes**.com

Our Plans Include You

FISCHER HOMES

GREENBRIAR

Maple Street Collection

welcome home.

Approximately 1983 sq ft

COASTAL CLASSIC
(WITH OPTIONAL BRICK & PORCH)

designed by:

HYDE PARK COTTAGE
(WITH OPTIONAL BRICK & COVERED ENTRY)

designed by:

COASTAL CLASSIC
(WITH OPTIONAL BRICK)

designed by:

HYDE PARK COTTAGE

designed by:

Images & Options Available at fischerhomes.com

Our Plans Include You

FISCHER HOMES

GREENBRIAR

Maple Street Collection

welcome home.

Approximately 1983 sq ft

Urban Modern

Images & Options Available at **fischerhomes**.com

Our Plans Include You

FISCHER HOMES

HARPER

Maple Street Collection

welcome home.

MODERN FARMHOUSE
(WITH OPTIONAL BRICK & PORCH)

designed by:

AMERICAN CLASSIC
(WITH OPTIONAL BRICK & PORCH)

designed by:

AMERICAN CLASSIC
(WITH OPTIONAL PORCH)

designed by:

MODERN FARMHOUSE

designed by:

Images & Options Available at fischerhomes.com

Our Plans Include You

FISCHER HOMES

MACKINAW

Maple Street Collection

welcome home.

Approximately 1634 sq ft

WESTERN CRAFTSMAN
(WITH OPTIONAL BRICK & PORCH)

designed by:

WESTERN CRAFTSMAN
(WITH OPTIONAL BRICK)

designed by:

Images & Options Available at **fischerhomes**.com

Our Plans Include You

FISCHER HOMES

MADISON

Maple Street Collection

welcome home.

Approximately 2268 sq ft

WESTERN CRAFTSMAN
(WITH OPTIONAL BRICK)

designed by:

AMERICAN CLASSIC
(WITH OPTIONAL BRICK & PORCH)

designed by:

AMERICAN CLASSIC

designed by:

Images & Options Available at fischerhomes.com

Our Plans Include You

FISCHER HOMES

MAYSVILLE

Maple Street Collection

welcome home.

Approximately 1427 sq ft

WESTERN CRAFTSMAN
(WITH OPTIONAL BRICK)

designed by:

WESTERN CRAFTSMAN

designed by:

PACIFIC CRAFTSMAN
(WITH OPTIONAL BRICK)

designed by:

PACIFIC CRAFTSMAN

designed by:

Images & Options Available at **fischerhomes**.com

Our Plans Include You

FISCHER HOMES

PRESTON

Maple Street Collection

welcome home.

Approximately 1621 sq ft

MODERN FARMHOUSE

designed by:

MODERN FARMHOUSE
(WITH OPTIONAL BRICK)

designed by:

AMERICAN CLASSIC

designed by:

AMERICAN CLASSIC
(WITH OPTIONAL BRICK)

designed by:

Images & Options Available at **fischerhomes**.com

Our Plans Include You

FISCHER HOMES

PRESTON

Maple Street Collection

welcome home.

Approximately 1805 sq ft

Urban Modern

designed by:

Images & Options Available at **fischerhomes**.com

Our Plans Include You

FISCHER HOMES

PRESTON

Maple Street Collection

welcome home.

Approximately 1805 sq ft

Modern Farmhouse

designed by:

Images & Options Available at **fischerhomes**.com

Our Plans Include You

FISCHER HOMES

REDWOOD

Maple Street Collection

welcome home.

Approximately 2817 sq ft

GRANDE VISTA
(WITH OPTIONAL BRICK)

designed by:

GRANDE VISTA

designed by:

BELLA VISTA

designed by:

BELLA VISTA
(WITH OPTIONAL BRICK)

designed by:

Images & Options Available at **fischerhomes**.com

Our Plans Include You

FISCHER HOMES

WESLEY

Maple Street Collection

welcome home.

Approximately 1842 sq ft

WESTERN CRAFTSMAN
(WITH OPTIONAL BRICK & PORCH)

designed by:

MODERN FARMHOUSE
(WITH OPTIONAL BRICK)

designed by:

WESTERN CRAFTSMAN
(WITH OPTIONAL PORCH)

designed by:

MODERN FARMHOUSE

designed by:

Images & Options Available at **fischerhomes**.com

Our Plans Include You

FISCHER HOMES

WINCHESTER

Maple Street Collection

welcome home.

Approximately 1924 sq ft

PACIFIC CRAFTSMAN
(WITH OPTIONAL BRICK & PORCH)

designed by:

AMERICAN CLASSIC
(WITH OPTIONAL BRICK)

designed by:

AMERICAN CLASSIC
(WITH OPTIONAL BRICK & PORCH)

designed by:

Images & Options Available at fischerhomes.com

Our Plans Include You

FISCHER HOMES

YOSEMITE

Maple Street Collection

welcome home.

Approximately 2258 sq ft

CAMBRIDGE COTTAGE
(WITH OPTIONAL BRICK & PORCH)

designed by:

CAMBRIDGE COTTAGE
(WITH OPTIONAL BRICK)

designed by:

CAMBRIDGE COTTAGE
(WITH OPTIONAL PORCH)

designed by:

WESTERN CRAFTSMAN
(WITH OPTIONAL BRICK)

designed by:

Images & Options Available at fischerhomes.com

Our Plans Include You

Farmstead
Munsell Color Chart

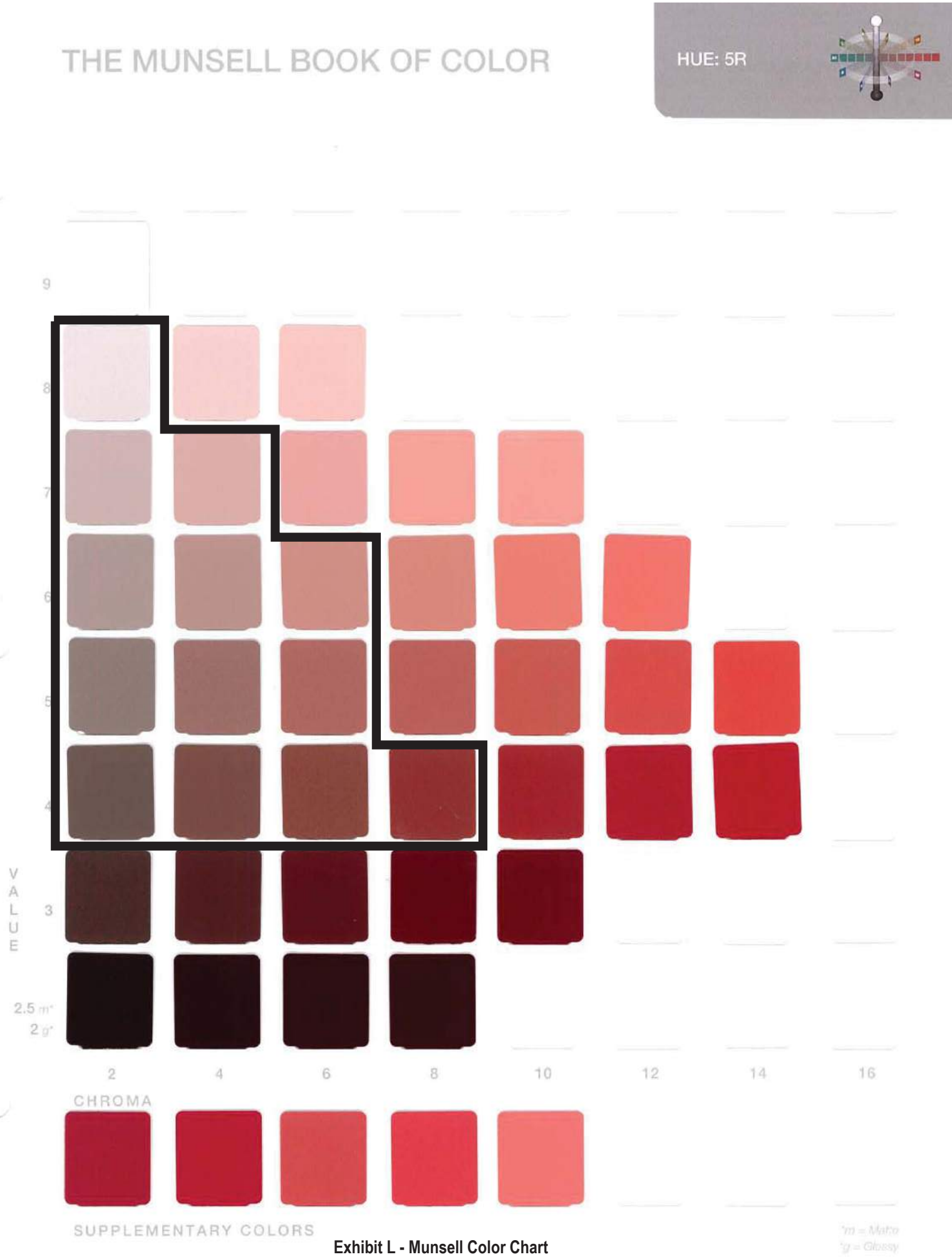


Exhibit L - Munsell Color Chart

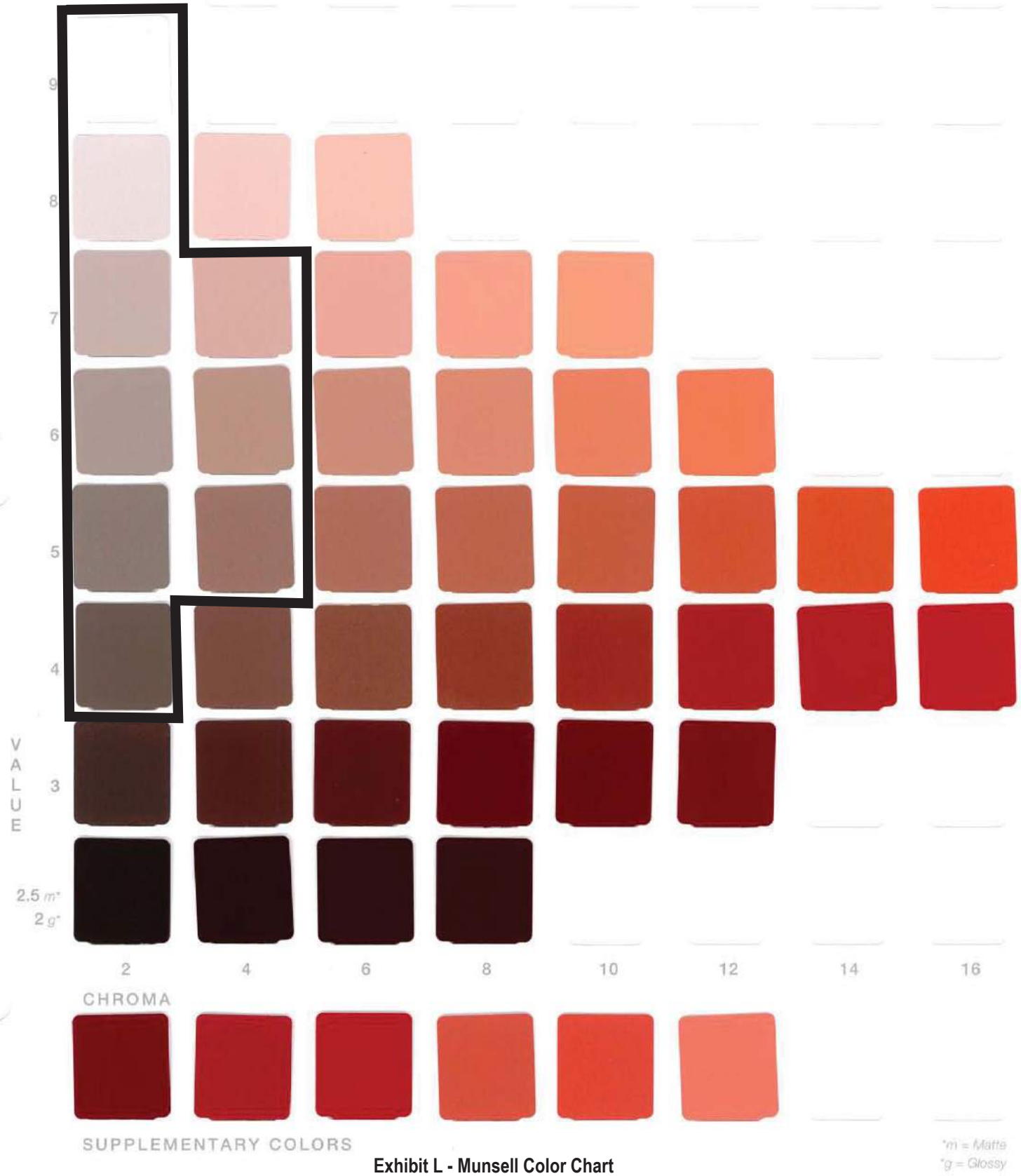
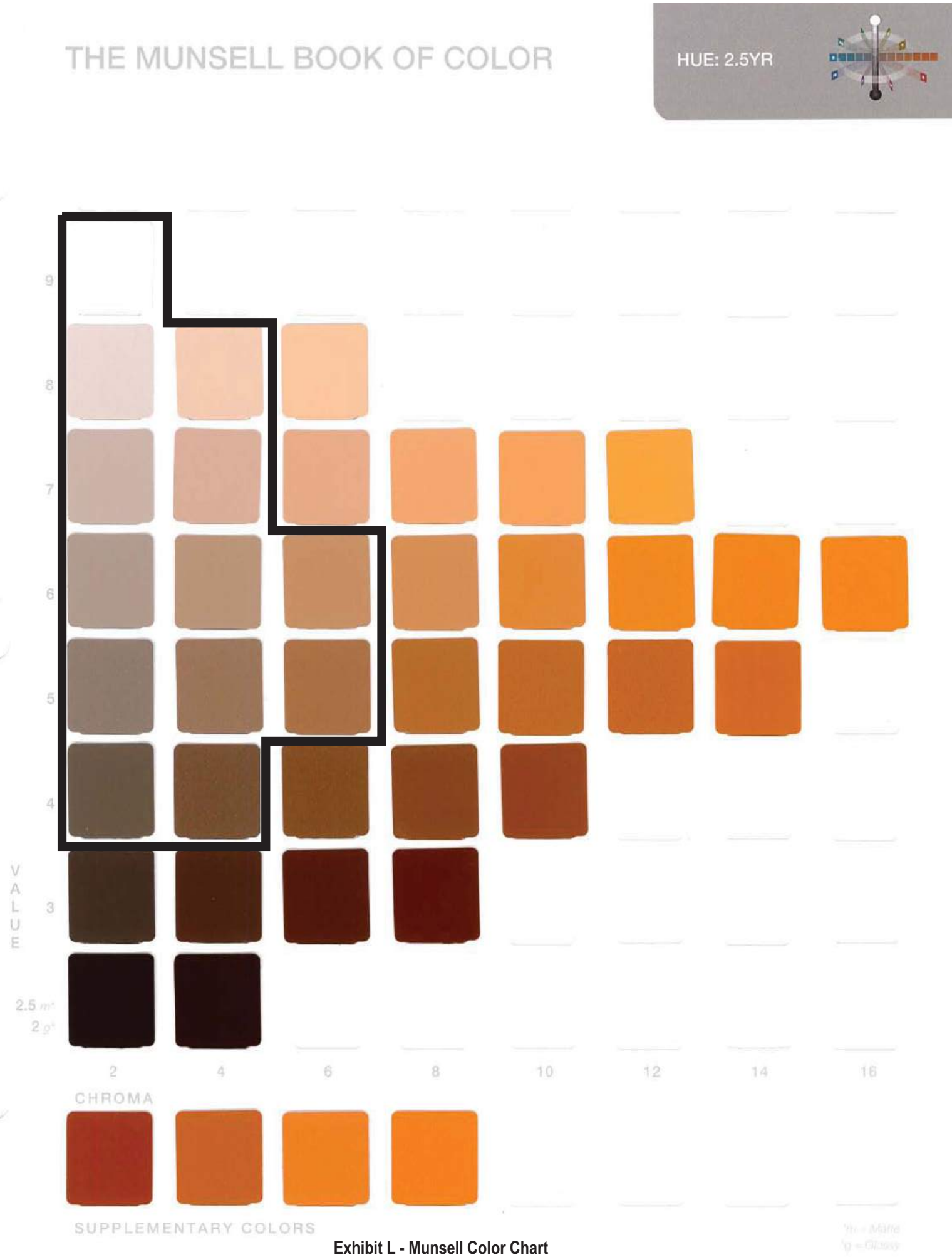


Exhibit L - Munsell Color Chart



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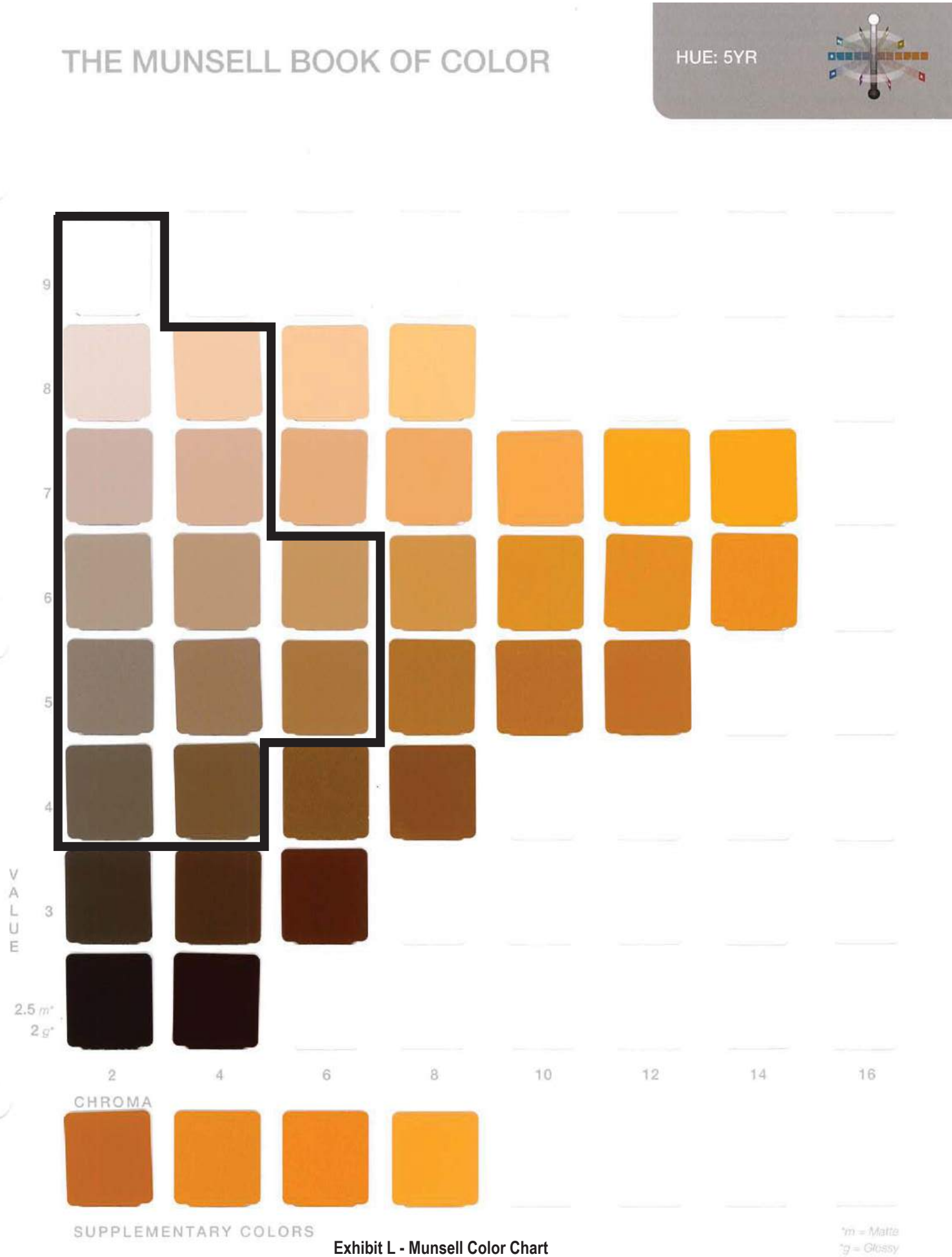

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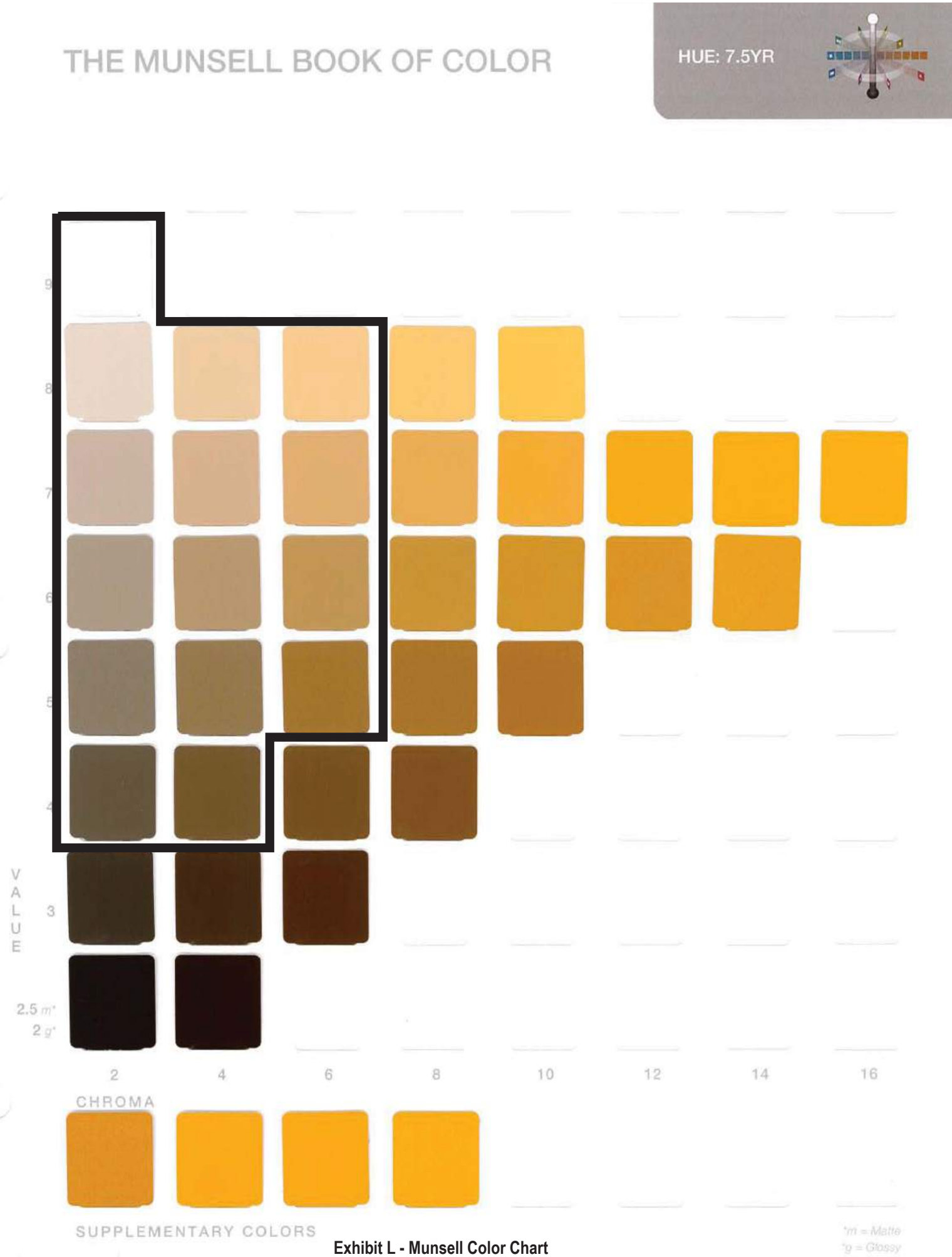

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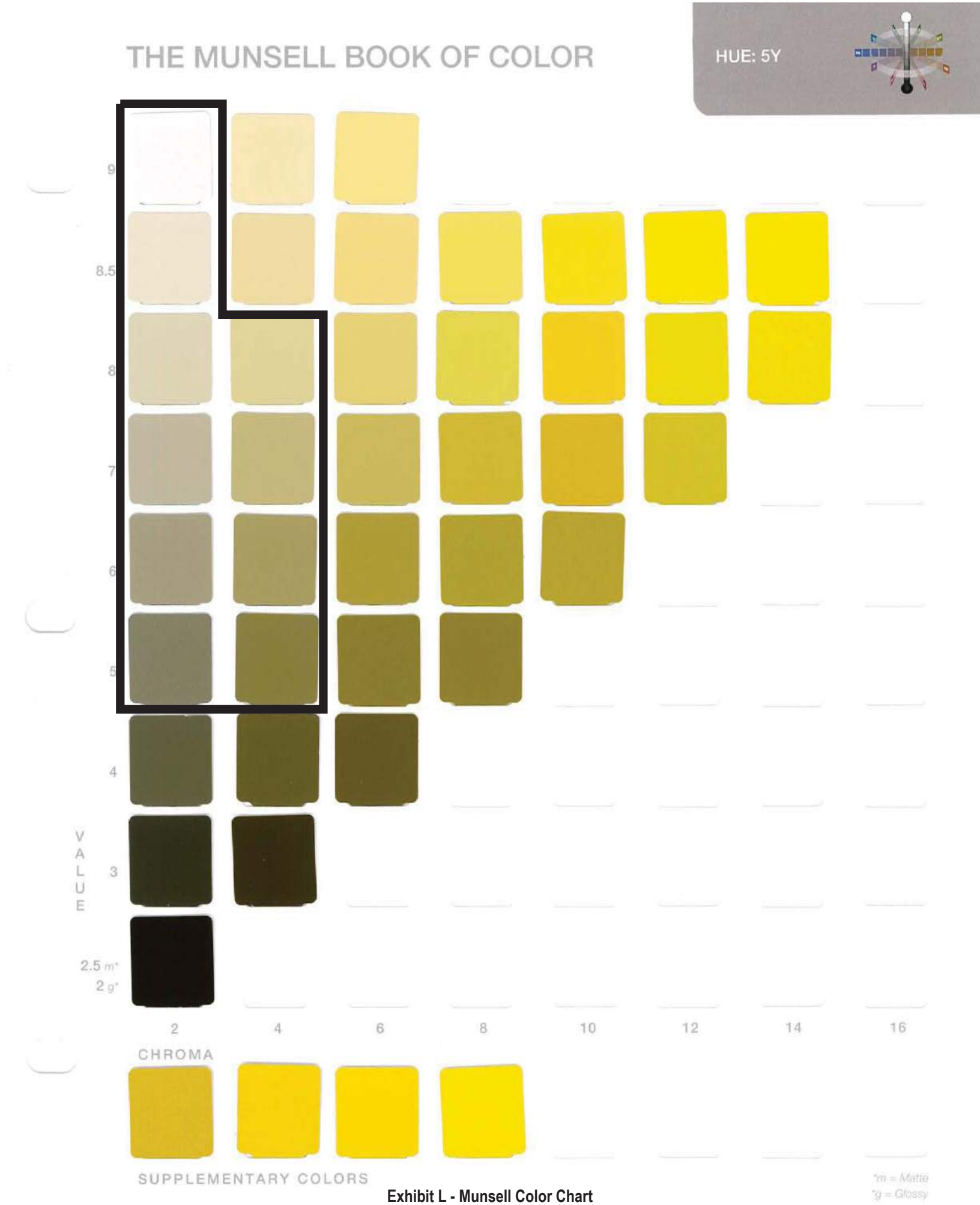
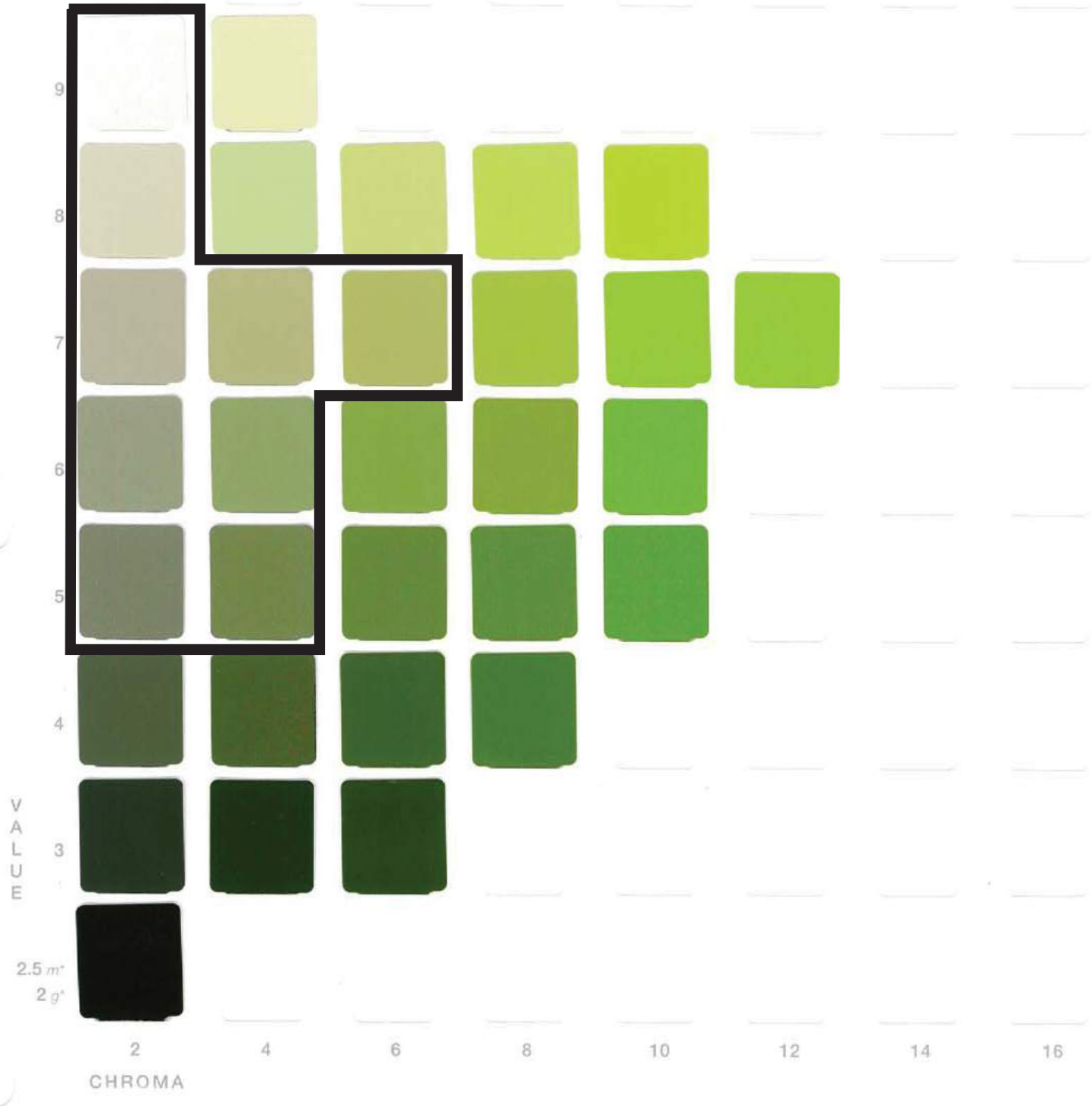


Exhibit L - Munsell Color Chart

THE MUNSELL BOOK OF COLOR

HUE: 5GY



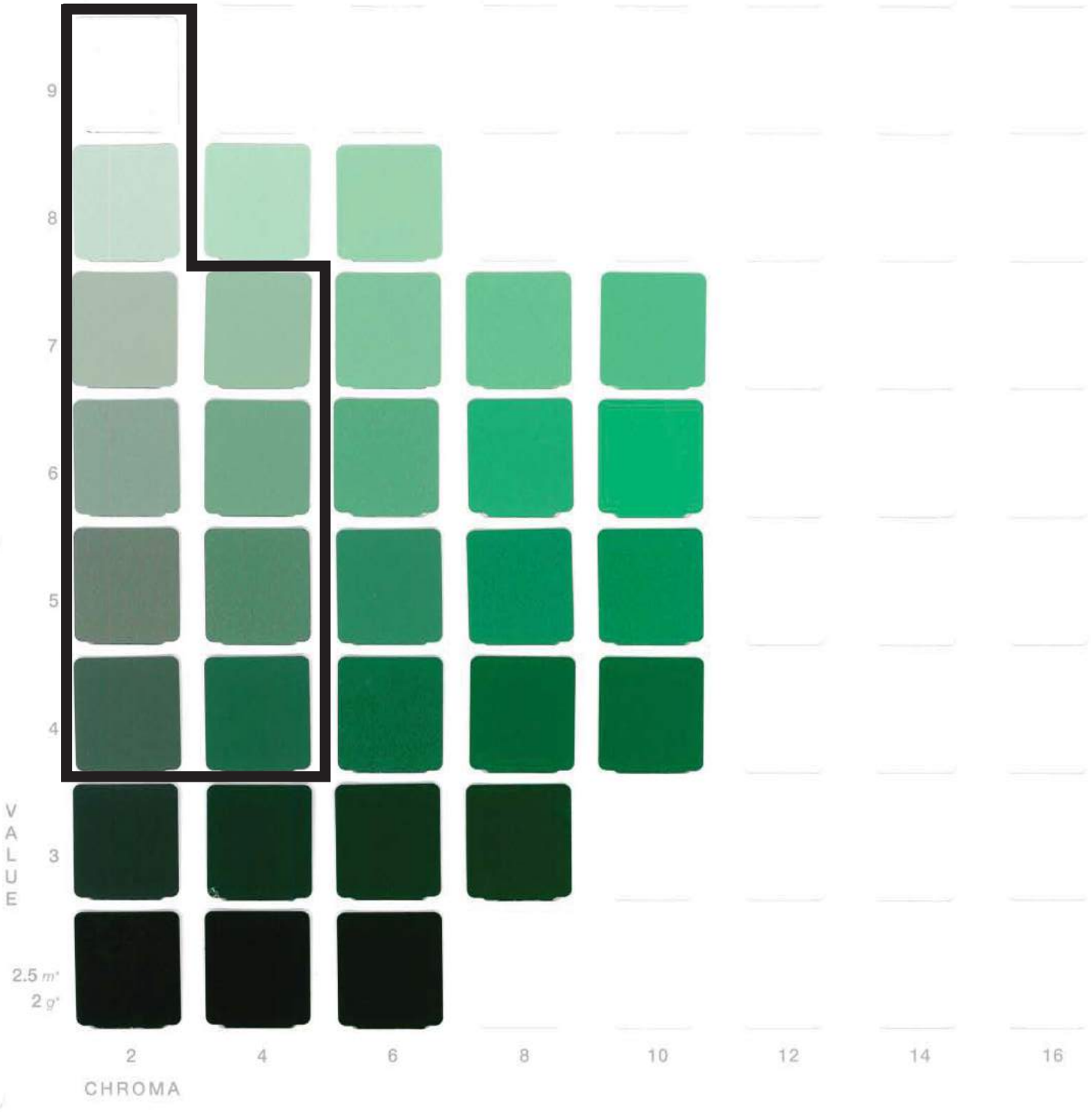
SUPPLEMENTARY COLORS

*m = Matte
*g = Glossy

Exhibit L - Munsell Color Chart

THE MUNSELL BOOK OF COLOR

HUE: 5G



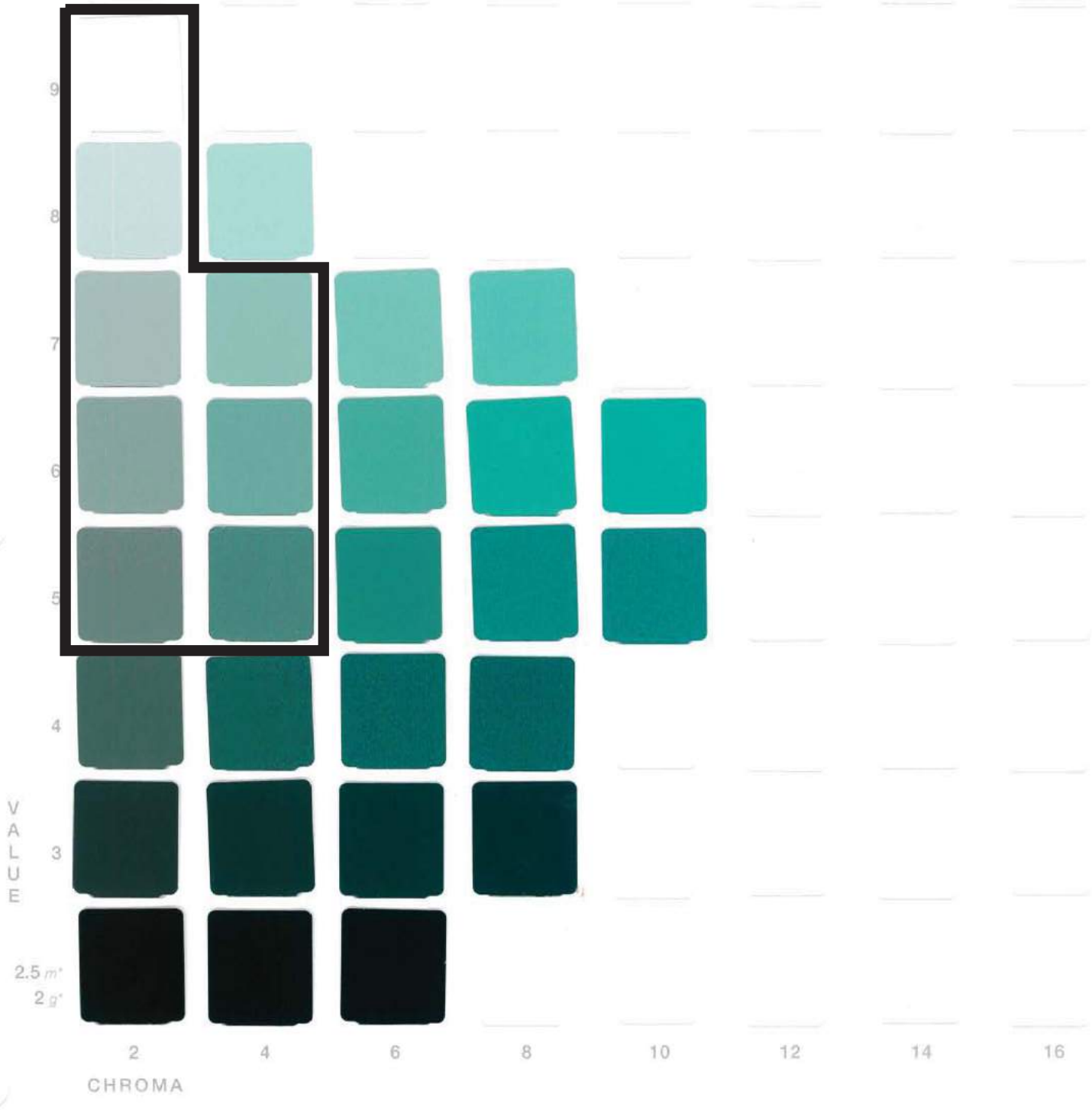
SUPPLEMENTARY COLORS

*m = Matte
*g = Glossy

Exhibit L - Munsell Color Chart

THE MUNSELL BOOK OF COLOR

HUE: 5BG



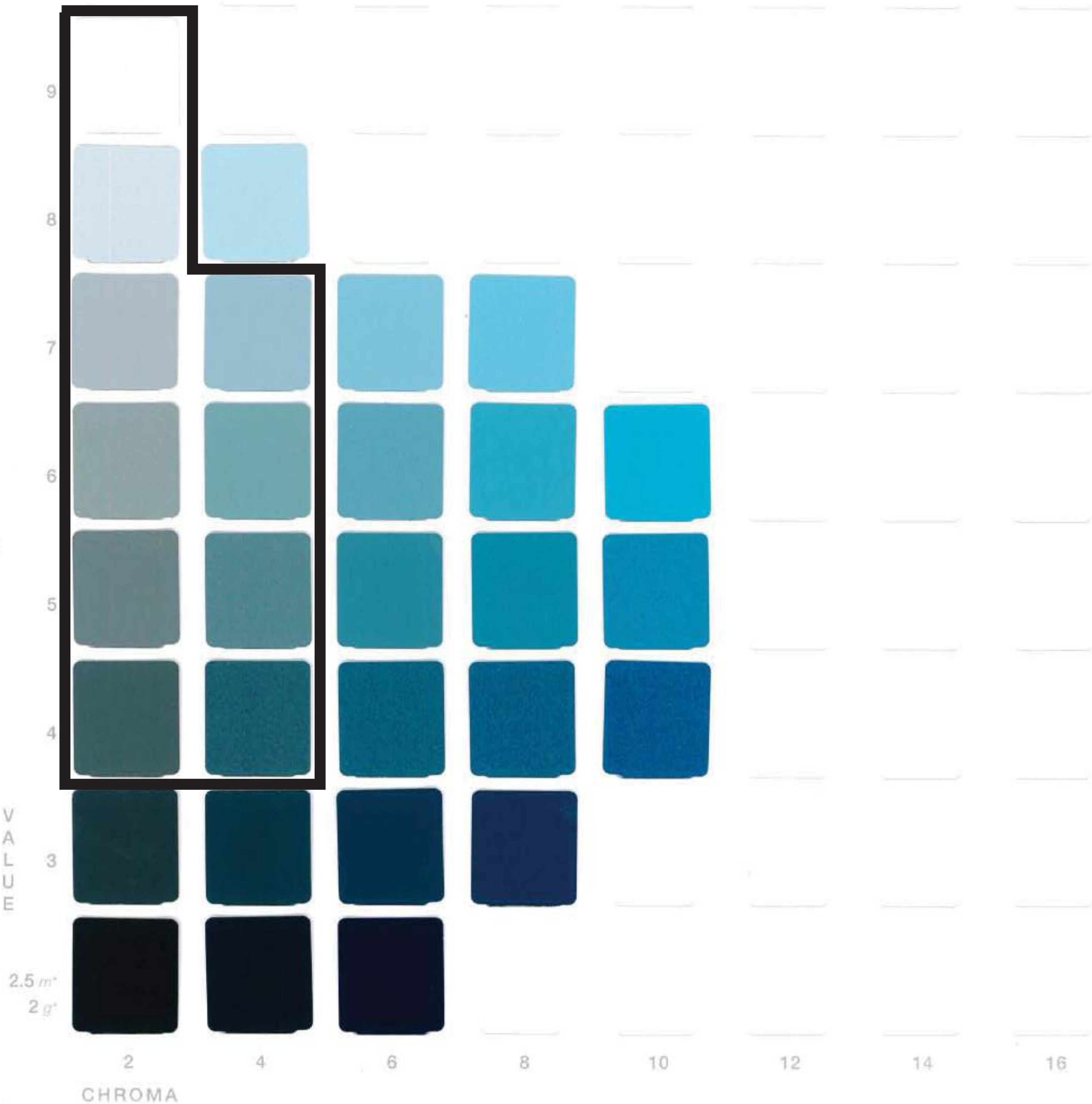
SUPPLEMENTARY COLORS

*m = Matte
*g = Glossy

Exhibit L - Munsell Color Chart

THE MUNSELL BOOK OF COLOR

HUE: 5B



SUPPLEMENTARY COLORS

*m = Matte
*g = Glossy

Exhibit L - Munsell Color Chart

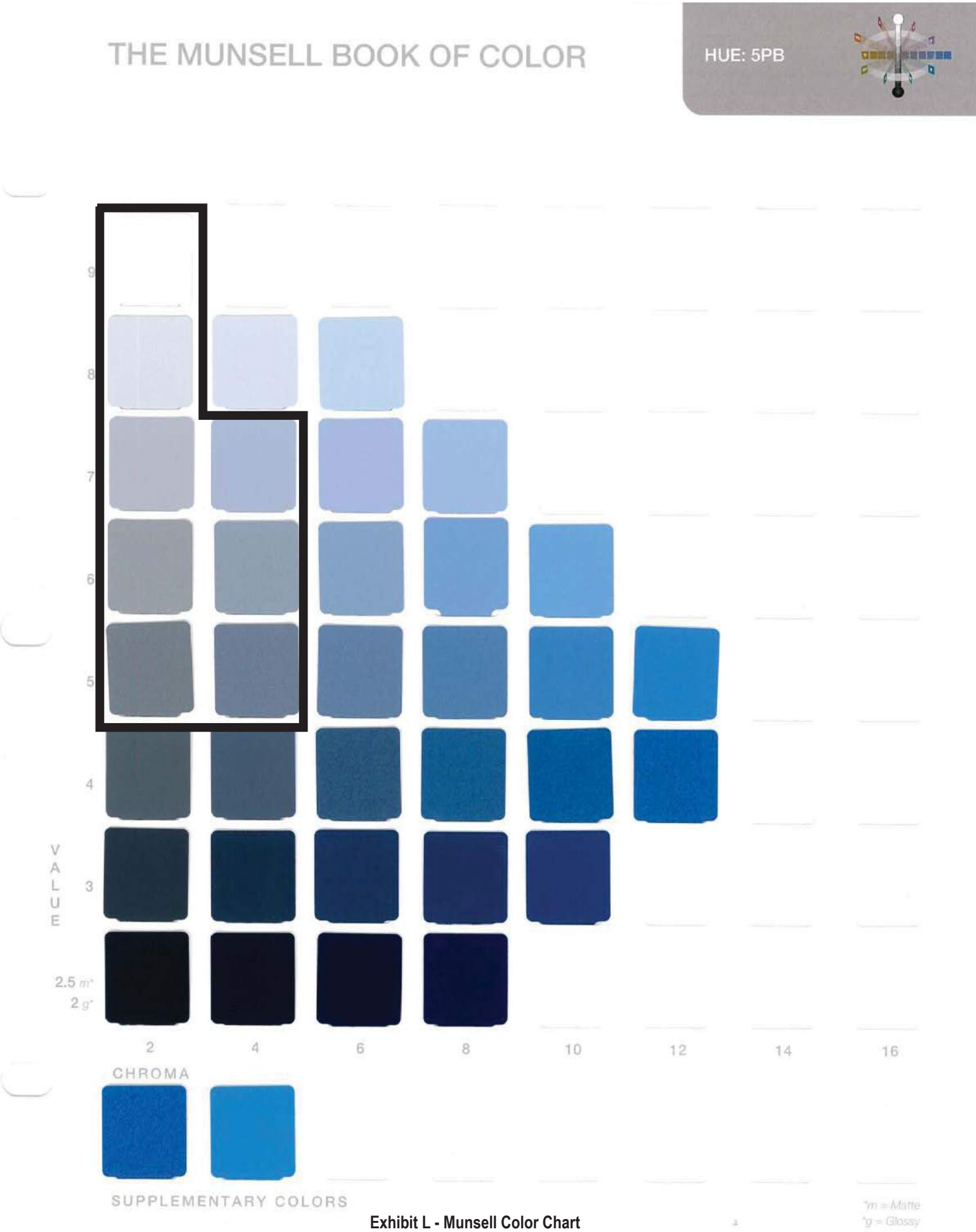
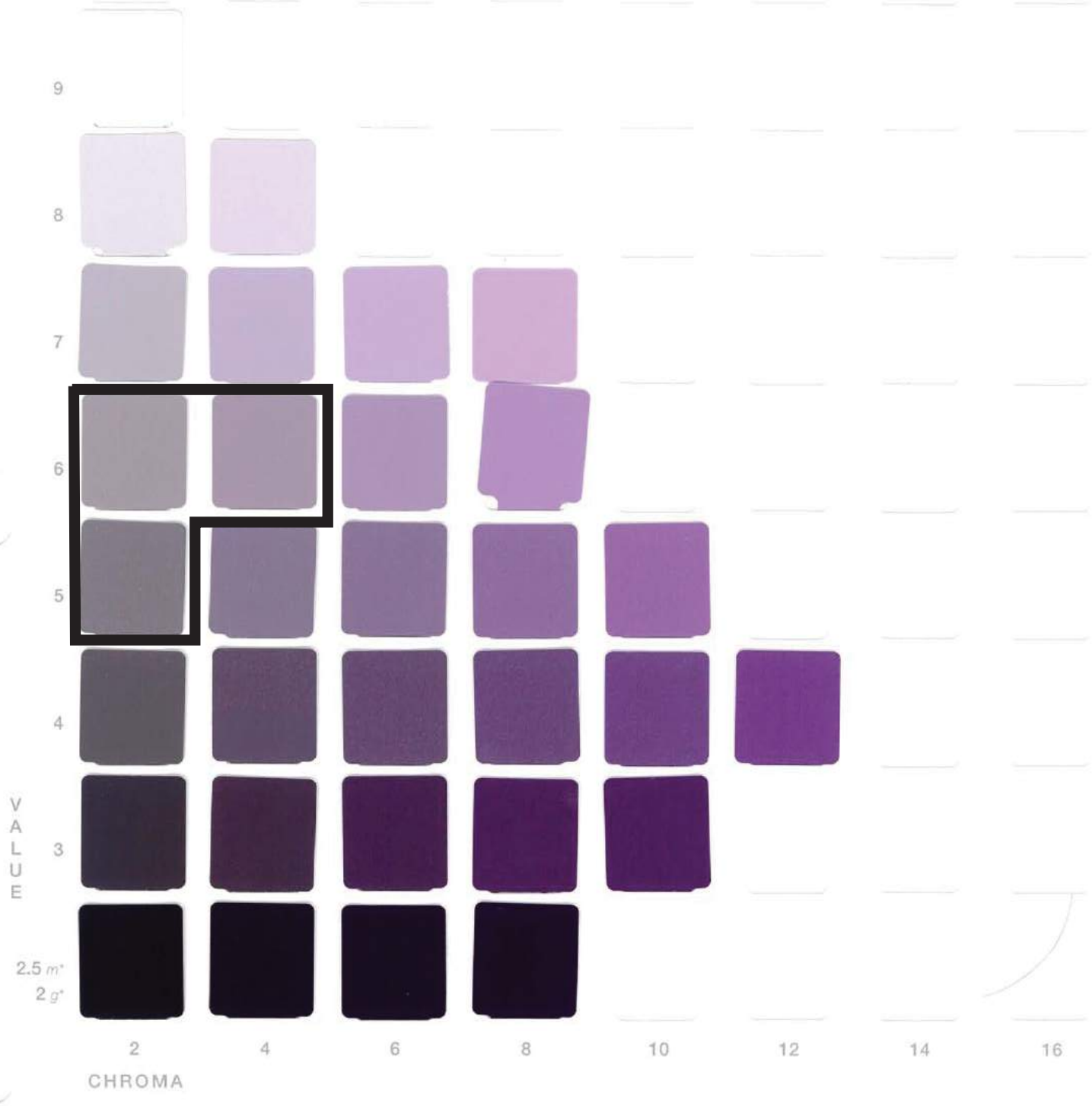


Exhibit L - Munsell Color Chart

THE MUNSELL BOOK OF COLOR

HUE: 5P



SUPPLEMENTARY COLORS

*m = Matte
*g = Glossy

Exhibit L - Munsell Color Chart

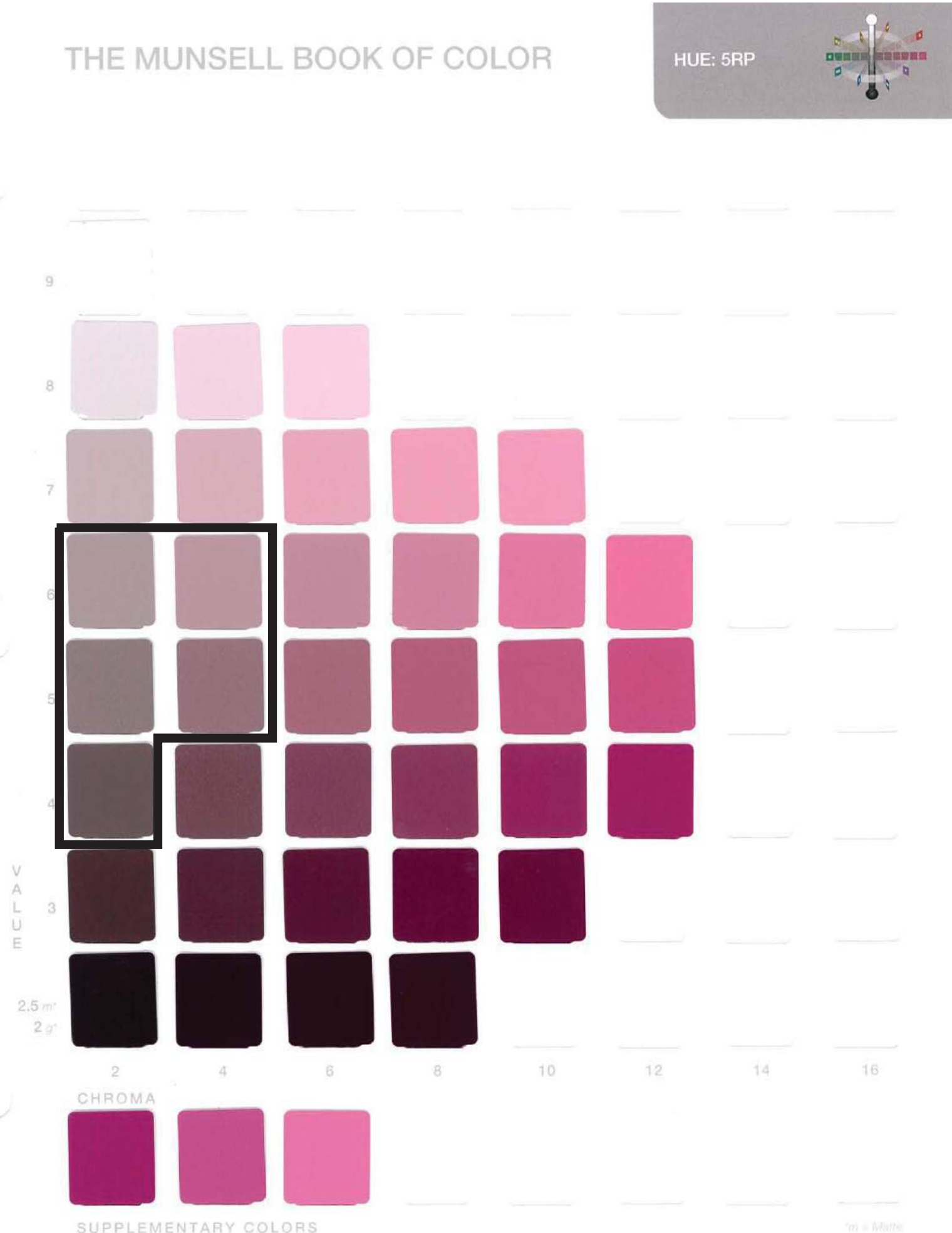


Exhibit L - Munsell Color Chart

DESCRIPTION OF 21.522 ACRES

Situated in the State of Ohio, County of Franklin, City of Grove City, Virginia Military Survey 1105 and 6115, being part of a 207.933 acre tract of land, conveyed to Grand Communities, LLC, of record in Instrument Number 201906070067841, all of a 1.613 acre tract of land, conveyed to John H. Hancock Limited, of record in Instrument Number 201403120029967, and being part of Lot 3 of the Partition of Ephraim Borror's Estate, of record in Plat Book 3, Page 240, all references to records being on file in the Office of the Recorder, Franklin County, Ohio, said 21.522 acre tract being more fully described herein;

BEGINNING FOR REFERENCE at FCGS Monument 5453 at the Centerline intersection of Jackson Pike (State Route 104) and Hibbs Road (Township Road 255);

Thence, South 36°00'00" West, a distance of 584.47 feet, with the original centerline of said Jackson Pike, to a point;

Thence, South 03°42'59" West, a distance of 2356.10 feet, with the original centerline of said Jackson Pike, to a MAG Nail set at the **TRUE POINT OF BEGINNING** at a southeast corner of said 207.933 acre tract, the northeast corner of said 1.613 acre tract, and being on the west line of a 75.626 acre tract of land, conveyed to Appalachia Ohio Alliance, of record in Instrument Number, 201803210037566, 201803210037568, 201803210037570, 201803210037572 and 201803270039767;

Thence, South 03°42'59" West, a distance of 275.67 feet, with the east line of said 1.613 acre tract, the west line of said 75.626 acre tract, and the centerline of said Jackson Pike, to a MAG Nail set at the southeast corner of said 1.613 acre tract, on the west line of said 75.626 acre tract, and being at the northeast corner of a 7.362 acre tract of land, conveyed to Paul G. Klein and Buddie J. Klein, of record in Official Record 00758 J10;

Thence, North 86°45'23" West, passing over an iron pin set at 30.00 feet, passing over a 3/4" iron pipe found at 253.93 feet, for a total distance of 837.90 feet, with the south line of said 1.613 acre tract, the south line of said 207.933 acre tract, and with the north line of said 7.362 acre tract, to an iron pin set;

Thence, through said 207.933 acre tract, the following twenty seven (27) courses:

1. North 03°20'51" East, a distance of 50.15 feet, to an iron pin set;
2. North 04°48'07" East, a distance of 59.35 feet, to an iron pin set;
3. North 07°48'41" East, a distance of 61.47 feet, to an iron pin set;
4. North 09°17'50" East, a distance of 204.00 feet, to an iron pin set;
5. North 09°09'10" East, a distance of 49.31 feet, to an iron pin set;
6. North 06°00'10" East, a distance of 49.31 feet, to an iron pin set;
7. North 01°44'21" East, a distance of 47.41 feet, to an iron pin set;
8. North 01°53'56" West, a distance of 48.76 feet, to an iron pin set;
9. North 02°22'33" West, a distance of 204.00 feet, to an iron pin set;
10. North 02°10'20" West, a distance of 54.49 feet, to an iron pin set;
11. North 01°30'38" East, a distance of 34.64 feet, to an iron pin set;
12. North 03°42'59" East, a distance of 289.88 feet, to an iron pin set;
13. North 18°29'36" East, a distance of 55.05 feet, to an iron pin set on the arc of a curve;

250 Old Wilson Bridge Road, Suite 250 | Worthington, Ohio 43085 | p: 614-540-6633 f: 614-540-6638 | www.cecinc.com

14. With a curve to the left, having a radius of 390.00 feet, a delta angle of 12°31'12", an arc length of 85.22 feet, a chord bearing of South 80°01'25" East and a chord distance of 85.05 feet, to an iron pin set at the point of tangency;

15. South 86°17'01" East, a distance of 102.60 feet, to an iron pin set at the point of curvature;

16. With a curve to the right, having a radius of 20.00 feet, a delta angle of 90°00'00", an arc length of 31.42 feet, a chord bearing of South 41°17'01" East and a chord distance of 28.28 feet, to to an iron pin set at the point of tangency;

17. South 03°42'59" West, a distance of 4.00 feet, to an iron pin set;

18. South 86°17'01" East, a distance of 60.00 feet, to an iron pin set;

19. North 03°42'59" East, a distance of 4.00 feet, to an iron pin set at the point of curvature;

20. With a curve to the right, having a radius of 10.00 feet, a delta angle of 90°00'00", an arc length of 15.71 feet, a chord bearing of North 48°42'59" East and a chord distance of 14.14 feet, to an iron pin set at the point of tangency;

21. South 86°17'01" East, a distance of 480.00 feet, to an iron pin set at the point of curvature;

22. With a curve to the right, having a radius of 20.00 feet, a delta angle of 90°00'00", an arc length of 31.42 feet, a chord bearing of South 41°17'01" East and a chord distance of 28.28 feet, to an iron pin set at the point of tangency;

23. South 03°42'59" West, a distance of 351.33 feet, to an iron pin set;

24. South 86°17'01" East, a distance of 5.00 feet, to an iron pin set;

25. South 03°42'59" West, a distance of 409.53 feet, to an iron pin set;

26. South 86°17'01" East, a distance of 5.00 feet, to an iron pin set;

27. South 03°42'59" West, a distance of 119.49 feet, to an iron pin set on a south line of said 207.933 acre tract, and being on the north line of said 1.613 acre tract;

Thence, South 85°19'32" East, passing over a 3/4" iron pipe found at 11.13 feet, on the west Right-of-Way line of said Jackson Pike, for a total distance of 40.01 feet, with a south line of said 207.933 acre tract, and the north line of said 1.613 acre tract, to the **TRUE POINT OF BEGINNING**, containing 21.522 acres, subject to all easements and documents of record. Which 9.050 acres lies within VMS 1105, and 12.472 acres lies within VMS 6115.

All iron pins set are 5/8-inch solid rebar, 30 inches in length, with a yellow plastic cap bearing the initials "CEC INC".

For the purpose of this description the bearing of North 26°24'47" West, as determined for the centerline of Hibbs Road (Township Road 255), as determined between FCGS 1514 and FCGS 5470 by the Franklin County Engineer and shown on the centerline survey plat for Hibbs Road on file at the Franklin County Engineer's Office.

This document is based from an actual field survey performed by or under my direct supervision in March, 2018.

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

3/03/2020

Mark Alan Smith, P.S. Date
Registered Surveyor No. 8232

Date Prepared: 3/3/2020
File Name: 300277-SV01-Legal 21.522 acres.docx

PLAT OF SURVEY

STATE OF OHIO, COUNTY OF FRANKLIN,
CITY OF GROVE CITY,
VIRGINIA MILITARY SURVEY NUMBERS 1105 AND 6115

BASIS OF BEARINGS:

THE BEARINGS SHOWN ON THIS SURVEY ARE BASED ON THE BEARING OF NORTH 26°24'47" WEST, AS DETERMINED FOR THE CENTERLINE OF HIBBS ROAD (TOWNSHIP ROAD 255), AS DETERMINED BETWEEN FCGS 1514 AND FCGS 5470 BY THE FRANKLIN COUNTY ENGINEER AND SHOWN ON THE CENTERLINE SURVEY PLAT FOR HIBBS ROAD ON FILE AT THE FRANKLIN COUNTY ENGINEER'S OFFICE.

IRON PINS:

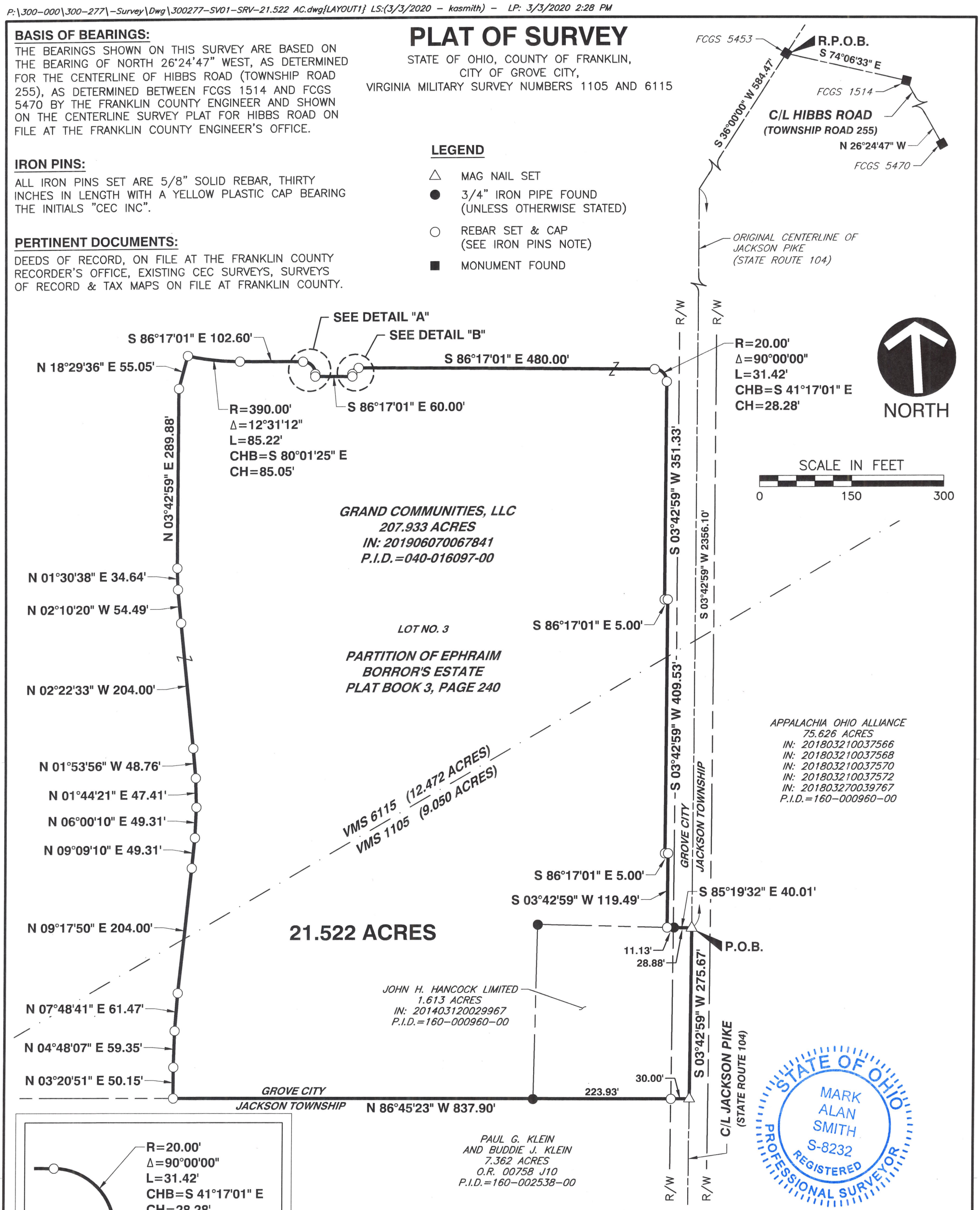
ALL IRON PINS SET ARE 5/8" SOLID REBAR, THIRTY INCHES IN LENGTH WITH A YELLOW PLASTIC CAP BEARING THE INITIALS "CEC INC".

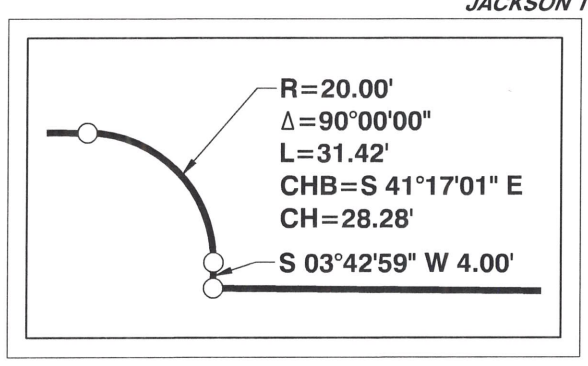
PERTINENT DOCUMENTS:

DEEDS OF RECORD, ON FILE AT THE FRANKLIN COUNTY RECORDER'S OFFICE, EXISTING CEC SURVEYS, SURVEYS OF RECORD & TAX MAPS ON FILE AT FRANKLIN COUNTY.

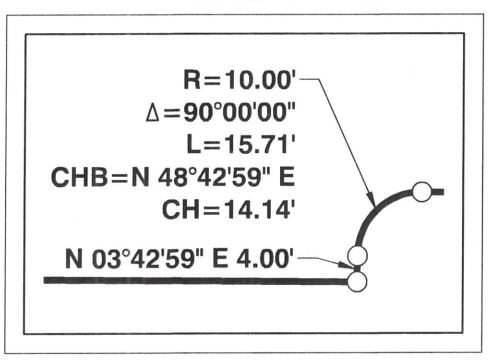
LEGEND

- △ MAG NAIL SET
- ● 3/4" IRON PIPE FOUND (UNLESS OTHERWISE STATED)
- ○ REBAR SET & CAP (SEE IRON PINS NOTE)
- ■ MONUMENT FOUND





DETAIL "A"
SCALE: 1" = 30'



DETAIL "B"
SCALE: 1" = 30'

CERTIFICATION:

WE HEREBY CERTIFY THAT THE FOREGOING BOUNDARY SURVEY WAS PREPARED FROM AN ACTUAL FIELD SURVEY PERFORMED BY OR UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH CHAPTER 4733-37 OHIO ADMINISTRATIVE CODE. THE SURVEY WAS PERFORMED IN MARCH, 2018.

03/03/2020

MARK ALAN SMITH — DATE
PROFESSIONAL LAND SURVEYOR NO. 8232

STATE OF OHIO
MARK ALAN SMITH
S-8232
REGISTERED
PROFESSIONAL SURVEYOR

Received by
City of Grove City
03-04-20

Civil & Environmental Consultants, Inc.
333 Baldwin Road · Pittsburgh, PA 15205
412-429-2324 · 800-365-2324
www.cecinc.com

PLAT OF SURVEY

21.522 ACRES

DRAWN BY:	KAS	CHECKED BY:	MAS	APPROVED BY:		EXHIBIT:
DATE:	MARCH 2020	DWG SCALE:	1"=150'	PROJECT NO:	300-277	1 OF 1

Final

Effective Date: April 10, 2017
Expiration Date: April 09, 2022

OHIO GENERAL PERMIT FOR FILLING CATEGORY 1 AND CATEGORY 2 ISOLATED WETLANDS

Pursuant to Section 6111.021 of the Ohio Revised Code (ORC), the Director of the Ohio Environmental Protection Agency hereby authorizes the filling of, and the discharge of dredged material into, Category 1 and Category 2 isolated wetlands, in accordance with the conditions specified in Parts I through V of this permit, where the proposed project involves the filling of, or the discharge of dredged material into, Category 1 and Category 2 isolated wetlands of a total of ½ acre or less.

Coverage under this general permit is conditioned upon payment of applicable fees and submittal of a complete Pre-Activity Notice (PAN).

This General Isolated Wetland Permit shall be effective for five (5) years and shall expire at midnight on the expiration date shown above.

Craig W. Butler
Director

Part I. COVERAGE UNDER THIS PERMIT

Coverage under this permit is limited to the filling of, and the discharge of dredged material into, Category 1 and Category 2 isolated wetlands, of up to a total of one-half acre or less. The filling of, or discharge of dredged material into, greater than one-half acre of Category 1 or 2 isolated wetlands, or any Category 3 isolated wetlands is specifically not authorized under this general permit.

Part II. NOTIFICATION REQUIREMENTS

A) Contents of Notification: For coverage under this general permit, a PAN must be submitted to the Ohio EPA and must contain the following information:

1) A completed General Isolated Wetlands Permit Application Form;

2) An acceptable wetland delineation as performed in accordance with the 1987 U.S. Army Corps of Engineers wetland delineation manual and any other procedures and requirements adopted by the U.S. Army Corps of Engineers for delineating wetlands, including a determination from the U.S. Army Corps of Engineers that the wetlands proposed to be covered by this permit are isolated;

3) A completed Ohio Rapid Assessment Method (ORAM 5.0) wetland categorization form for each isolated wetland on the project site. Ohio EPA will make the final assignment of a wetland category in accordance with Rule 3745-1-54 of the Ohio Administrative Code(OAC);

4) A detailed project description;

5) Maps showing project footprint/wetlands, including a U.S. Geological Survey topographic map, and other maps that may be pertinent to assessing the functional level of the isolated wetlands proposed to be covered under the PAN, such as county soil maps and National/Ohio Wetland Inventory maps;

6) Photographs of each isolated wetland proposed to be covered by this permit with a photograph location map showing photograph number and direction the photograph was taken; and

7) An acceptable mitigation proposal in accordance with ORC Sections 6111.022(D) and 6111.027 including documentation that mitigation credits have either been purchased or reserved. If the proposal includes In-lieu fee mitigation, an evaluation of other mitigation alternatives must be provided.

B) Fees: A PAN shall be accompanied by appropriate fees as specified in ORC Section 3745.113.

C) Timing: Within fifteen (15) business days after the Director's receipt of a PAN, Ohio EPA shall notify the applicant whether the application is complete. If the application is not complete, Ohio EPA shall include in the notice an itemized list of the information or materials necessary to complete the application. If the applicant fails to provide the information or materials that are necessary to complete the application within sixty (60) days after the Director's receipt of the PAN, Ohio EPA may return the application and take no further action on it.

The Director shall notify the applicant within thirty (30) days after the Director's receipt of a complete PAN if the proposed filling of, or the discharge of dredged material into, the isolated wetlands will result in a significant negative impact on state water quality and, therefore, the project is not authorized under this general permit. If the applicant has not received notice that the project is not authorized by this general permit within thirty (30) days after the Director's receipt of a complete PAN, the applicant may move forward with the proposed project in accordance with the conditions stated in this general permit.

Part III. PERMIT CONDITIONS

Projects authorized under this General Isolated Wetland Permit shall be subject to the following conditions:

A) The project shall be constructed in accordance with the information as set forth in the complete PAN and the conditions of this permit.

B) Materials used for fill shall consist of suitable material free from toxic contaminants in other than trace quantities. Broken asphalt and rubber tires are specifically excluded from use as fill.

C) Temporary fill shall consist of suitable non-erodible material and shall be stabilized to prevent erosion.

D) When a project will result in the temporary removal of hydric topsoil from isolated wetlands, the hydric soil shall be separated and placed as the topmost backfill layer when the wetlands are restored.

E) Wetland narrative and chemical criteria described at Rules 3745-1-51 and 3745-1-52 of the Administrative Code shall be maintained in isolated wetlands wholly or partially avoided.

F) Except for linear transportation projects, visible signage shall be placed around the delineated boundary of avoided wetlands. The sign shall read as follows,

"This area has been identified as regulated wetlands. No filling may occur without first obtaining all necessary permits. For questions, please contact Ohio EPA at 614-644-2001."

Part IV. MITIGATION

A) Mitigation, in accordance with ORC Sections 6111.022(D) and 6111.027, is required in order to qualify for coverage under this General Isolated Wetland Permit.

B) Without the objection of the Director and at the discretion of the applicant, the applicant shall conduct either mitigation at a wetland mitigation bank within the same USACE district as the location of the proposed filling, permittee responsible mitigation, or at the director's discretion, the applicant may purchase credits from an approved In-lieu fee program which serves the impacted watershed.

C) Mitigation for the filling of, or the discharge of dredged material into, isolated wetlands covered under this permit shall be conducted in accordance with the following ratios:

1) For Category 1 and Category 2 isolated wetlands, other than forested Category 2 isolated wetlands, mitigation located at an approved wetland mitigation bank shall be conducted at a rate of two times the area of isolated wetland that is being impacted;

2) For forested Category 2 isolated wetlands, mitigation located at an approved wetland mitigation bank shall be conducted at a rate of two and one-half times the area of isolated wetland that is being impacted;

3) All other mitigation shall be subject to mitigation ratios established in division (F) of rule 3745-1-54 of the OAC.

D) Mitigation that involves the enhancement or preservation of isolated wetlands shall be calculated and performed in accordance with rule 3745-1-54 of the OAC.

E) The mitigation site shall be protected long term, and appropriate practicable management measures, including reasonable vegetative buffers, shall be implemented to restrict harmful activities that jeopardize the mitigation.

F) When mitigation will occur at an approved wetland mitigation bank or In-lieu fee program, mitigation credits must be acquired within 15 days after receipt of the written notice of approval authorizing impacts to isolated wetlands. Proof mitigation credits have been purchased shall be sent to Ohio EPA within 15 days after receipt of approval for coverage under this general permit.

G) Construction of permittee responsible mitigation not located at an approved bank, shall commence within 15 days after completion of fill activities authorized under this General Permit, and shall be completed prior to termination of coverage of approval under this General Isolated Wetland Permit specified in ORC 6111.022(E).

Part V. LIMITATIONS

An applicant that qualifies for coverage under this general permit shall complete the filling of, and the discharge of dredged material within two (2) years after the end of the thirty-day period following the Director's receipt of a complete PAN. If the applicant does not complete the filling of, and the discharge of dredged material within that two-year period, the applicant shall submit a new PAN in accordance with ORC Section 6111.022. This two-year, project-specific time limitation, should not be confused with the five-year effective period of this General Isolated Wetland Permit. If construction has started but is not complete, and the two-year time limitation has not expired, the permittee will be covered by the General Isolated Wetland Permit that was valid at the time Ohio EPA determined the project met the PAN requirements even if the five-year effective period has expired.

Part VI. FURTHER INFORMATION

Coverage under this general permit does not relieve the applicant from the need to obtain other Federal, State, or local permits, approvals, or authorizations required by law.

Ohio Environmental Protection Agency

Mike DeWine, Governor
Jon Husted, Lt. Governor
Laurie A. Stevenson, Director

Re: Farmstead
Permit - Intermediate
Approval
401 Wetlands
Franklin
DSW401196159

February 21, 2019

Jason Wisniewski
Grand Communities, LLC
3940 Olympic Blvd, Ste 100
Erlanger, KY 41018

Subject: Grant Authorization under Level One General Isolated Wetlands Permit
Farmstead
Ohio EPA ID No. 196159

Dear Mr. Wisniewski:

On January 23, 2019, the Ohio Environmental Protection Agency (Ohio EPA) received a pre-activity notice (PAN) for coverage under the OHIO GENERAL PERMIT FOR FILLING CATEGORY 1 AND CATEGORY 2 WETLANDS (general permit). In the PAN, you requested to impact 0.28 acre of non-forested Category 1 wetlands for the purpose of constructing a residential development located in Grove City, Franklin County (39° 50' 07.2", -83° 02' 02.5"). As compensatory mitigation for the aforementioned impacts, you shall purchase 0.6 acre of non-forested wetland mitigation credit from Big Darby Hellbranch Wetlands Mitigation Bank.

Ohio EPA has reviewed your request and has determined that it is complete and meets the PAN requirements for coverage under the general permit.

Please familiarize yourself with the general permit (see link below). It contains requirements and prohibitions with which you must comply. In particular, please be aware of permit condition Part IV.F as it specifically pertains to this project.

http://www.epa.ohio.gov/portals/35/401/2017-2022 General IWP.pdf

Additionally, please be aware that as per ORC §6111.022(E) and Part V of the general permit, the proposed filling of the isolated wetland must be completed within two years

of the date of this letter. If you do not complete the filling within this time, you must submit a new pre-activity notice to Ohio EPA.

You may find a copy of Ohio EPA's rules and laws online at http://www.epa.ohio.gov/dsw/dswrules.aspx. Information regarding Ohio's Section 401 and Isolated Wetlands Permitting programs is also available online at http://www.epa.ohio.gov/dsw/401/permitting.aspx.

If you have any questions, please contact me at 614-644-2327 or via email at Matthew.Lamoreaux@epa.ohio.gov.

Sincerely,

Matt Lamoreaux
Application Coordinator
401/Wetlands/Mitigation Section

ec: Andrea Kilbourne, Andrea.Kilbourne@epa.ohio.gov, Ohio EPA, DSW, Mitigation Coordinator
Jeff Boyles, Jeffrey.Boyles@epa.ohio.gov, 401/Wetlands/Mitigation Section Supervisor, Ohio EPA
Cory Wilson, cory.l.wilson@usace.army.mil, Department of the Army, Huntington District, Corps of Engineers
Vince Messerly, vmesserly@streamandwetlands.org, Stream + Wetlands Foundation
Jamie Vandusen, jvandusen@cecinc.com, Civil and Environmental Consultants, Inc.
DSW File

Stream and Wetlands FOUNDATION

123 South Broad Street, Suite 238
P.O. Box 369
Lancaster, Ohio 43130
T: (740) 654-4016
F: (740) 689-0890

February 15, 2019

Mr. Jason Wisniewski
Grand Communities, LLC
3940 Olympic Boulevard
Suite 100
Erlanger, Kentucky, 41018

RE: Wetlands Mitigation at its Farmstead site located west of Jackson Pike in Jackson Township, Franklin County, Ohio.
ACCT NO. BDH-80

Dear Mr. Wisniewski:

The Stream + Wetlands Foundation received on February 8, 2019 an additional deposit payment of $1,100 (check # check #622938) and an updated purchase agreement for its Farmstead site located west of Jackson Pike in Jackson Township, Franklin County, Ohio.

As per the terms of the Big Darby Hellbranch agreement, this deposit payment reserves for your use 0.6 acres of non-forested wetlands mitigation credits at the Big Darby Hellbranch Wetlands Mitigation Bank for a period of six (6) months. The remaining balance is $29,700 and is due within 30 days of the permit issuance date. If you do not receive your permit within the 6 month reservation period, additional deposit payments will be required as per the terms of our agreement.

Thank you very much for allowing Stream + Wetlands Foundation to assist you with the wetlands mitigation needs of this project. Should you need further assistance, please feel free to call anytime.

Sincerely,

Vincent E. Messerly, P.E.
President

Cc: Jamie VanDusen, Civil & Environmental Consultants, Inc., via email

JACKSON PIKE HYDRAULIC CALCULATIONS
for:
FARMSTEAD

CITY OF GROVE CITY
FRANKLIN COUNTY, OHIO

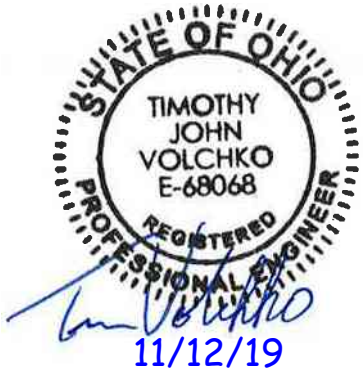
Prepared for:

GRAND COMMUNITIES, LLC.

Prepared by:

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
COLUMBUS, OHIO

CEC PROJECT 174-158



11/12/19

NOVEMBER 2019

TABLE OF CONTENTS

APPENDICES

1.0 POST-DEVELOPED SUMMARY

The proposed improvements along Jackson Pike (SR 104) for the proposed development Farmstead will include the construction of two (2) new inlets along Jackson Pike (SR 104). There are four (4) existing culverts located along Jackson Pike. Culverts A and B will have new inlets constructed in place of the existing culverts. Culvert C and D will not be disturbed. All four culverts outlet east of Jackson Pike.

For the two proposed inlets, inlet capacity calculations were completed to determine the 25-Year and 100-Year headwater elevations of the inlet. Per ODOT Section 1004.2 the design year storm of the proposed widening was determined to be a 25-Year storm. Proposed flows were calculated using the tributary acreage to each structure using HydroCAD. Culvert A shall have a 36" x 10.8" window with an invert of 717.00 on the west side and a top of casting (TC) of 718.40. Culvert B shall have a 36" x 12" window with an invert of 720.13 on the west side and a TC of 722.3. Culvert A used a combination of ODOT Figure 1102-1 and Hydraflow Express to determine the headwater elevation for the 25-Year and 100-Year headwater elevations. Hydraflow Express was used to determine the max flow rate that the proposed window could convey. This flow rate was then subtracted from the total flow entering the structure. The product of that calculation was then used on ODOT Figure 1102-1 to determine the headwater elevation above the TC. Culvert B was able to convey the entirety of the flow through the window. See Appendix A for the 25-Year and 100-Year calculations.

Culverts C and D were also modeled to determine the headwater depth using Hydraflow Express. Headwater depth was analyzed for both the 25-Year and 100-Year flows. Please see Appendix C.

Ditch calculations were also performed for the proposed work along Jackson Pike. Per ODOT section 1102.3.1 it is specified that the depth of flow shall be determined using a 10-year frequency storm. Q values were determined based on the tributary areas flowing through each section of ditch. The Q values were then utilized in Hydroflow Express AutoCAD to determine the depth at that location. Each location and tributary area are shown in Appendix D.

2.0 CONCLUSION

For the proposed improvements along Jackson Pike (SR 104) CEC has met all requirements set forth by ODOT and the City of Grove City. The proposed stormwater improvements should not pose a threat to property and public safety downstream of the proposed improvements along Jackson Pike.

APPENDIX A

PROPOSED INLET AND CULVERT CAPACITY CALCULATIONS

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Tuesday, Nov 12 2019

Culvert A (25-Year)

Invert Elev Dn (ft)	=	713.15
Pipe Length (ft)	=	54.77
Slope (%)	=	2.06
Invert Elev Up (ft)	=	714.28
Rise (in)	=	15.0
Shape	=	Circular
Span (in)	=	15.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Corrugate Metal Pipe
Culvert Entrance	=	Headwall
Coeff. K,M,c,Y,k	=	0.0078, 2, 0.0379, 0.69, 0.5

Embankment

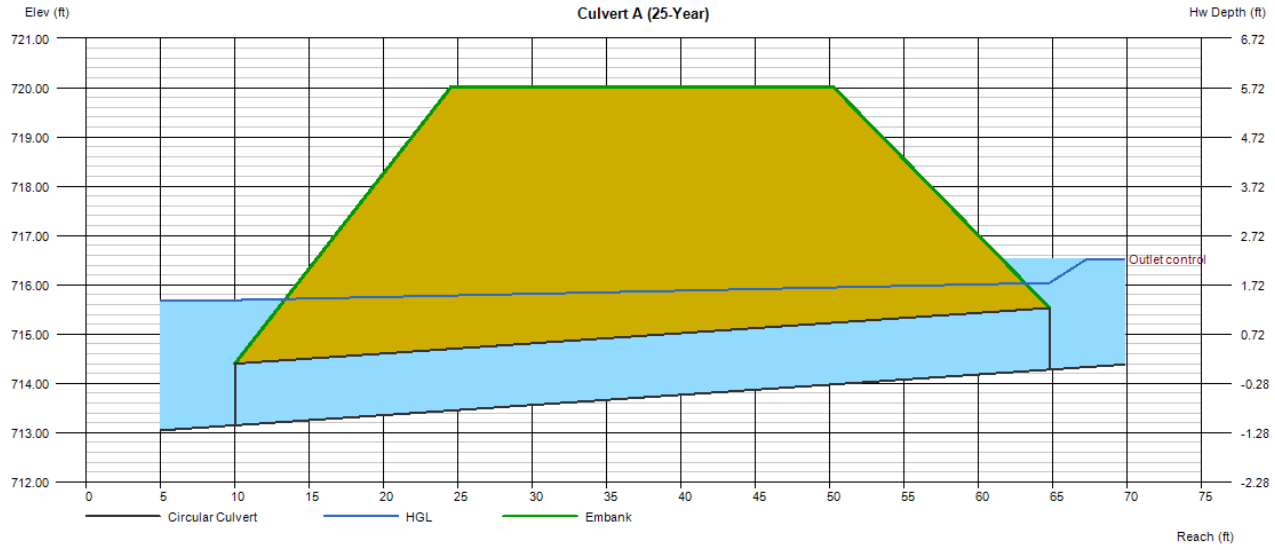
Top Elevation (ft)	=	720.02
Top Width (ft)	=	25.66
Crest Width (ft)	=	0.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	5.58
Tailwater Elev (ft)	=	715.69

Highlighted

Qtotal (cfs)	=	5.58
Qpipe (cfs)	=	5.58
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	4.55
Veloc Up (ft/s)	=	4.55
HGL Dn (ft)	=	715.69
HGL Up (ft)	=	716.04
Hw Elev (ft)	=	716.52
Hw/D (ft)	=	1.79
Flow Regime	=	Outlet Control



Weir Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Nov 7 2019

Culvert A Window Capacity

Rectangular Weir

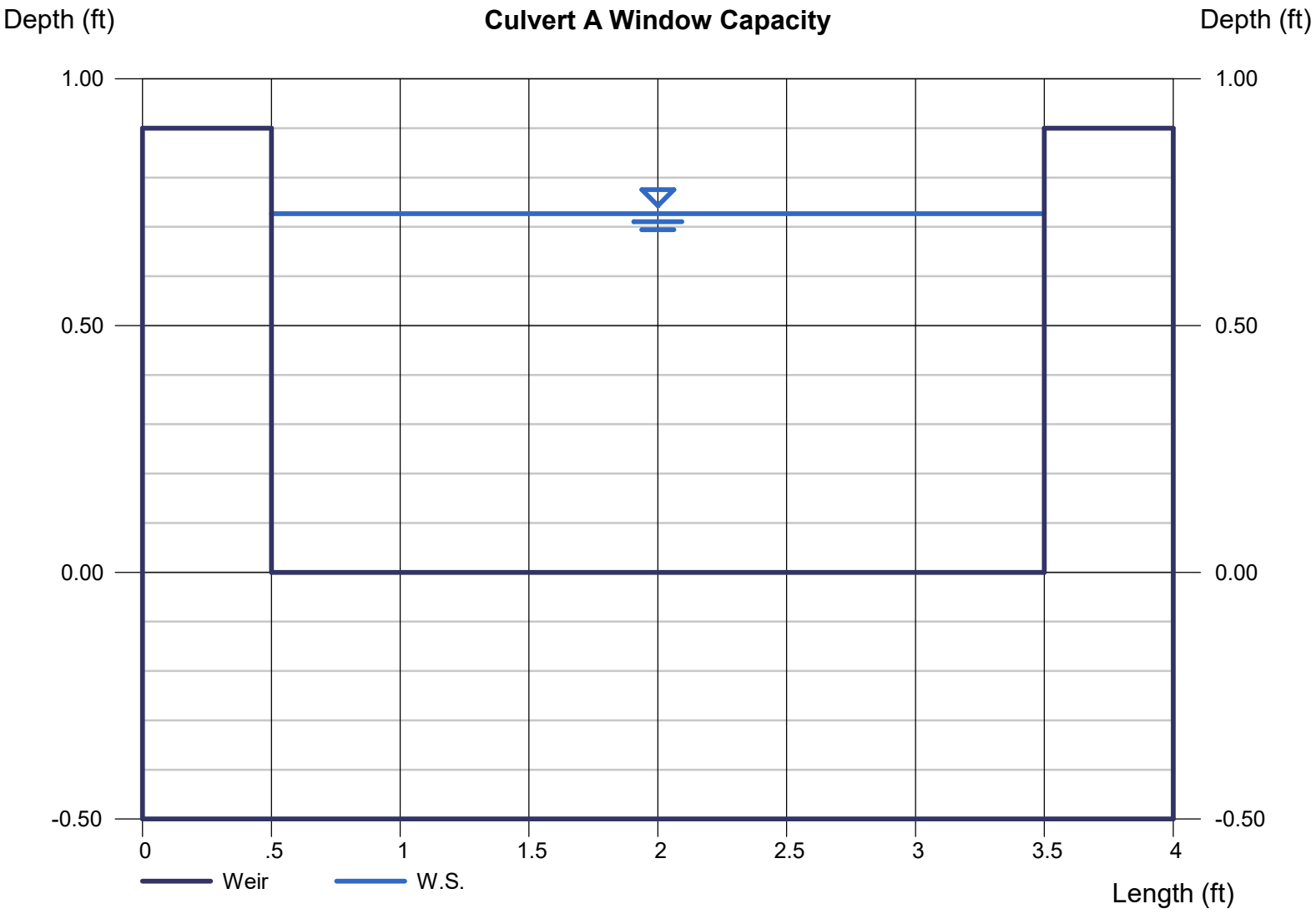
Crest	= Sharp
Bottom Length (ft)	= 3.00
Total Depth (ft)	= 0.90

Calculations

Weir Coeff. Cw	= 3.00
Compute by:	Known Q
Known Q (cfs)	= 5.58

Highlighted

Depth (ft)	= 0.73
Q (cfs)	= 5.580
Area (sqft)	= 2.18
Velocity (ft/s)	= 2.56
Top Width (ft)	= 3.00



Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Tuesday, Nov 12 2019

Culvert A (100-Year)

Invert Elev Dn (ft)	=	713.15
Pipe Length (ft)	=	54.77
Slope (%)	=	2.06
Invert Elev Up (ft)	=	714.28
Rise (in)	=	15.0
Shape	=	Circular
Span (in)	=	15.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Corrugate Metal Pipe
Culvert Entrance	=	Headwall
Coeff. K,M,c,Y,k	=	0.0078, 2, 0.0379, 0.69, 0.5

Embankment

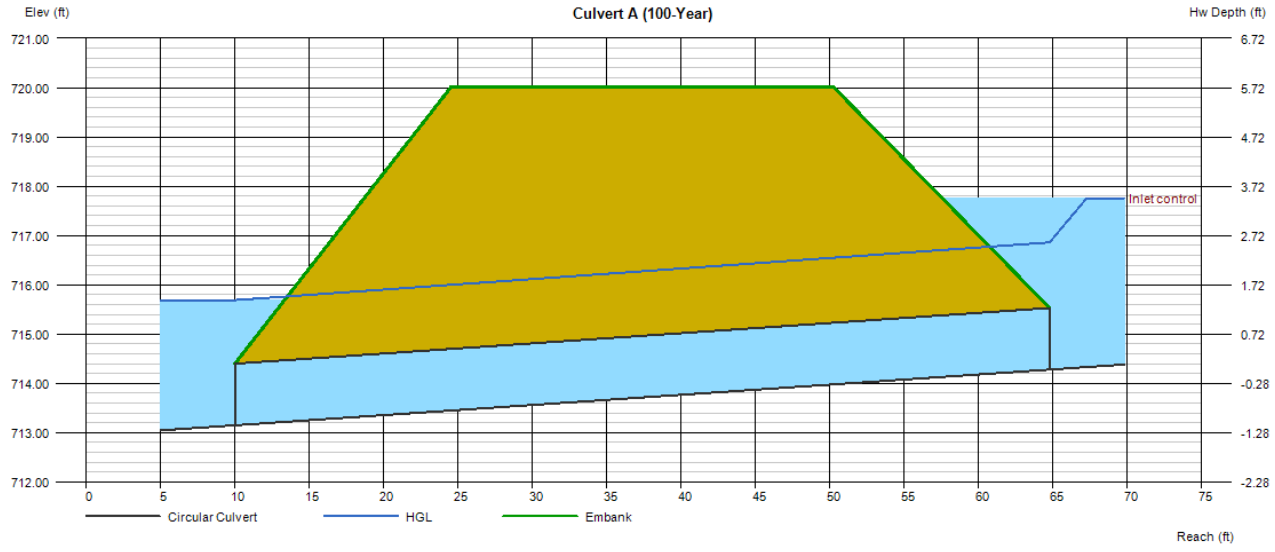
Top Elevation (ft)	=	720.02
Top Width (ft)	=	25.66
Crest Width (ft)	=	0.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	10.22
Tailwater Elev (ft)	=	715.69

Highlighted

Qtotal (cfs)	=	10.22
Qpipe (cfs)	=	10.22
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	8.33
Veloc Up (ft/s)	=	8.33
HGL Dn (ft)	=	715.69
HGL Up (ft)	=	716.86
Hw Elev (ft)	=	717.76
Hw/D (ft)	=	2.78
Flow Regime	=	Inlet Control



Weir Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Nov 7 2019

Culvert A (100-Year)

Rectangular Weir

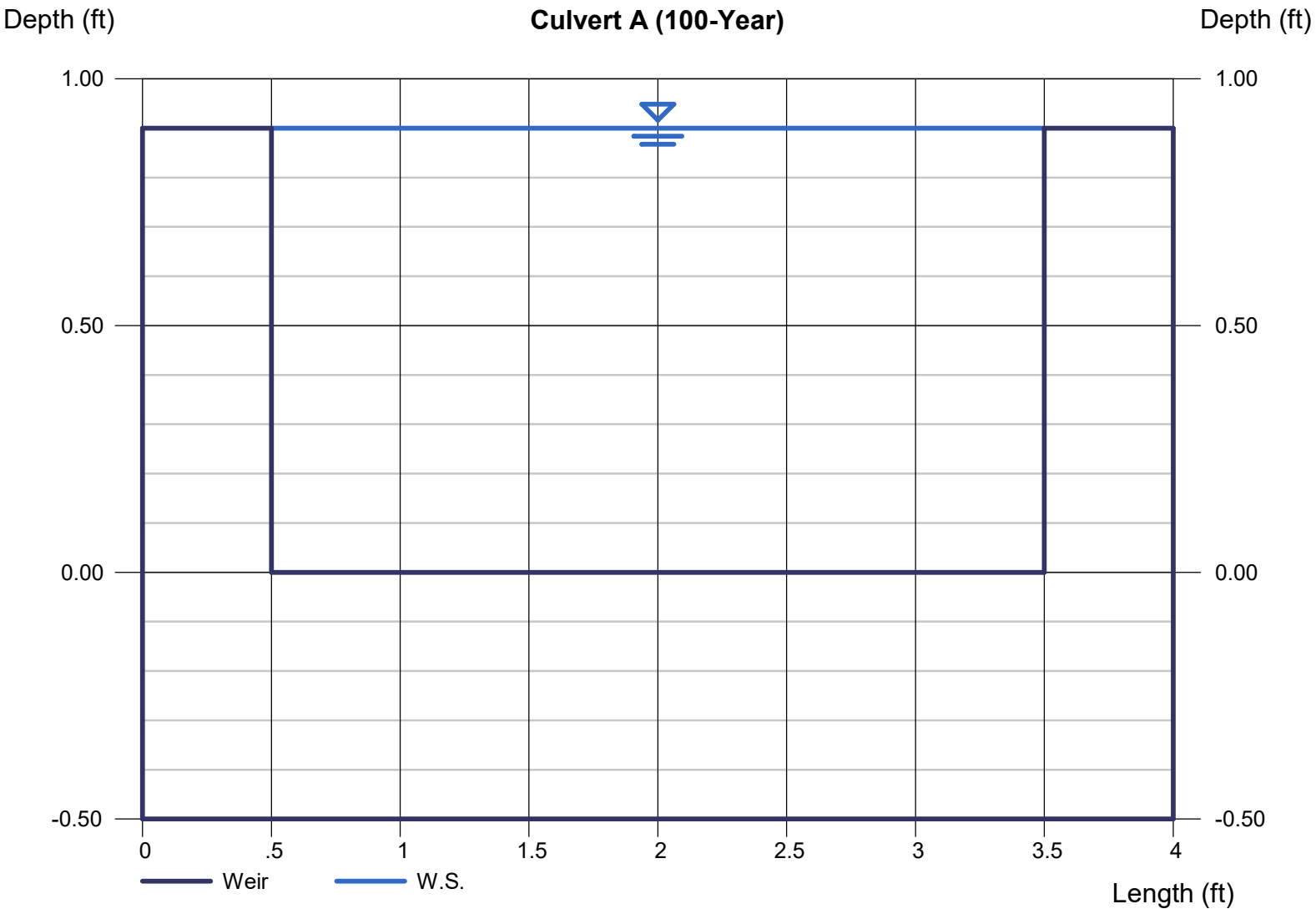
Crest	= Sharp
Bottom Length (ft)	= 3.00
Total Depth (ft)	= 0.90

Calculations

Weir Coeff. Cw	= 3.00
Compute by:	Q vs Depth
No. Increments	= 10

Highlighted

Depth (ft)	= 0.90
Q (cfs)	= 7.684
Area (sqft)	= 2.70
Velocity (ft/s)	= 2.85
Top Width (ft)	= 3.00

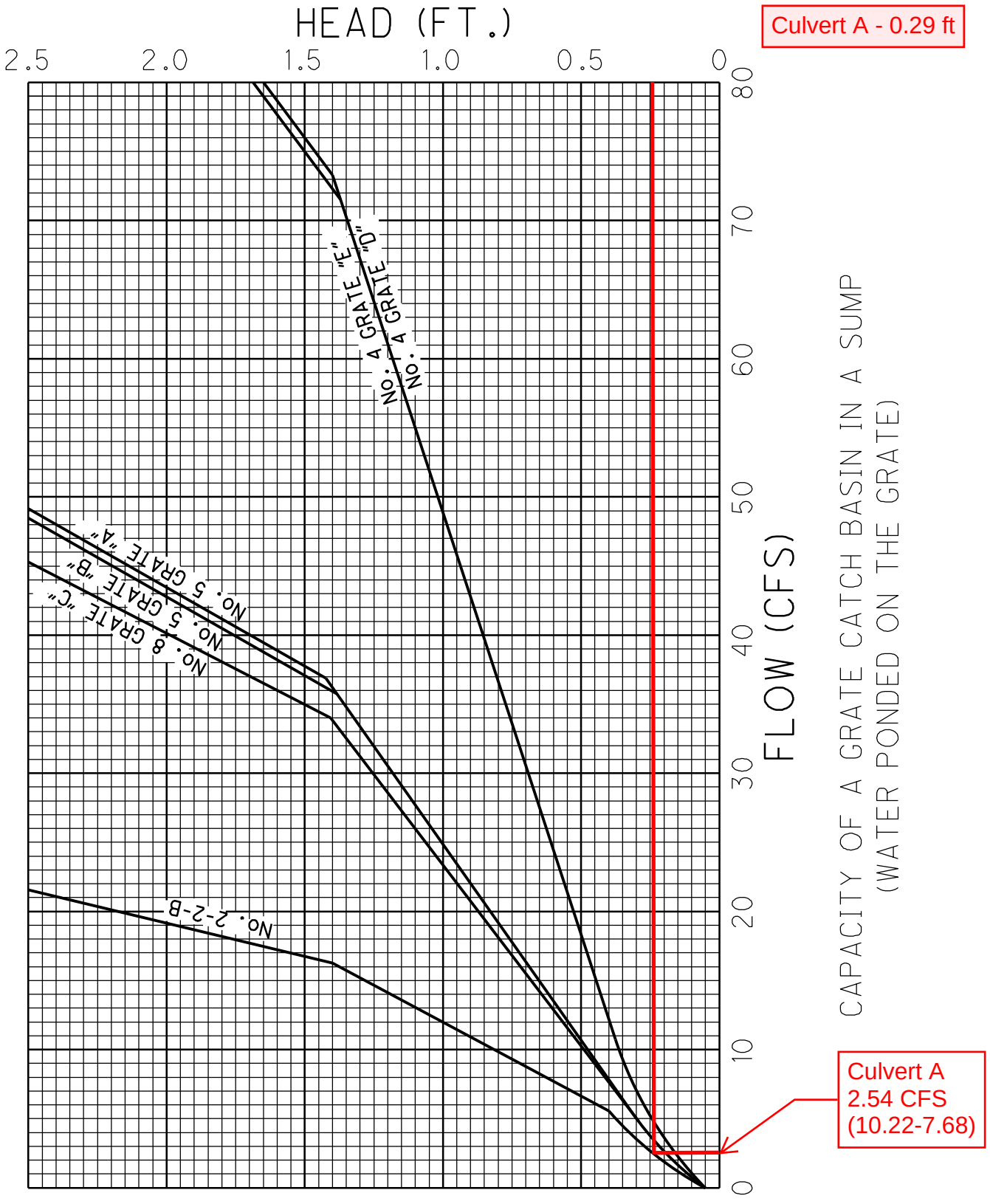


Jackson Pike Inlet Grate Capacity for Proposed conditions
Design Year = 100-Year

CAPACITY OF A GRATE CATCH BASIN IN A SUMP

1102-1

REFERENCE SECTION
1102.3.5



*Basin flood routes to north

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Nov 7 2019

Culvert B (25-Year)

Invert Elev Dn (ft)	=	715.90
Pipe Length (ft)	=	50.42
Slope (%)	=	1.47
Invert Elev Up (ft)	=	716.64
Rise (in)	=	24.0
Shape	=	Circular
Span (in)	=	24.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Corrugate Metal Pipe
Culvert Entrance	=	Headwall
Coeff. K,M,c,Y,k	=	0.0078, 2, 0.0379, 0.69, 0.5

Embankment

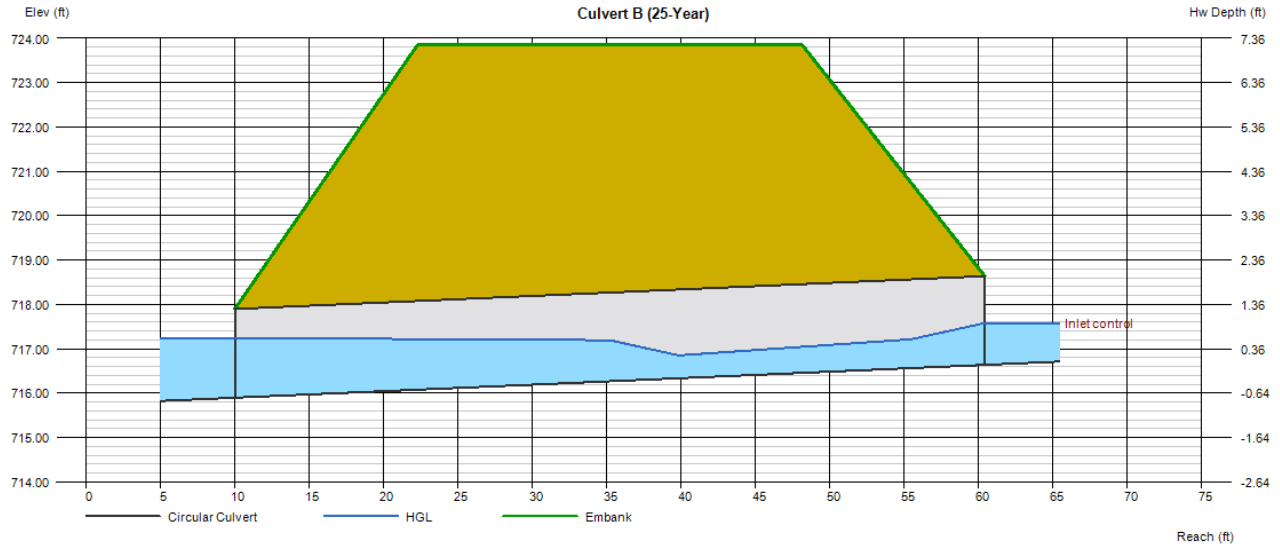
Top Elevation (ft)	=	723.85
Top Width (ft)	=	25.86
Crest Width (ft)	=	0.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	3.89
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	3.89
Qpipe (cfs)	=	3.89
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	1.73
Veloc Up (ft/s)	=	4.04
HGL Dn (ft)	=	717.25
HGL Up (ft)	=	717.33
Hw Elev (ft)	=	717.58
Hw/D (ft)	=	0.47
Flow Regime	=	Inlet Control



Weir Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Nov 7 2019

Culvert B (25-Year)

Rectangular Weir

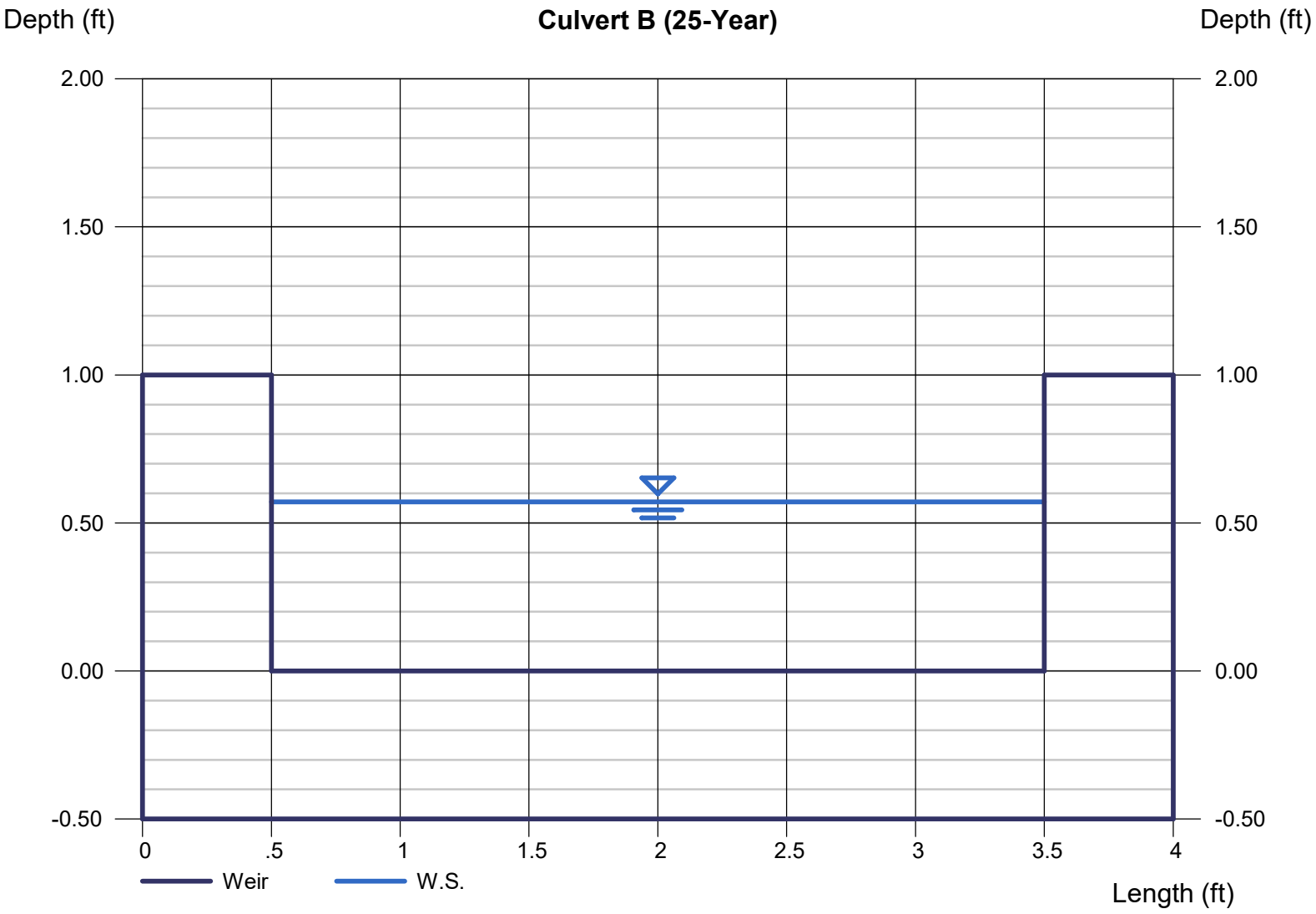
Crest	= Sharp
Bottom Length (ft)	= 3.00
Total Depth (ft)	= 1.00

Calculations

Weir Coeff. Cw	= 3.00
Compute by:	Known Q
Known Q (cfs)	= 3.89

Highlighted

Depth (ft)	= 0.57
Q (cfs)	= 3.890
Area (sqft)	= 1.71
Velocity (ft/s)	= 2.27
Top Width (ft)	= 3.00



Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Nov 7 2019

Culvert B (100-Year)

Invert Elev Dn (ft)	=	715.90
Pipe Length (ft)	=	50.42
Slope (%)	=	1.47
Invert Elev Up (ft)	=	716.64
Rise (in)	=	24.0
Shape	=	Circular
Span (in)	=	24.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Corrugate Metal Pipe
Culvert Entrance	=	Headwall
Coeff. K,M,c,Y,k	=	0.0078, 2, 0.0379, 0.69, 0.5

Embankment

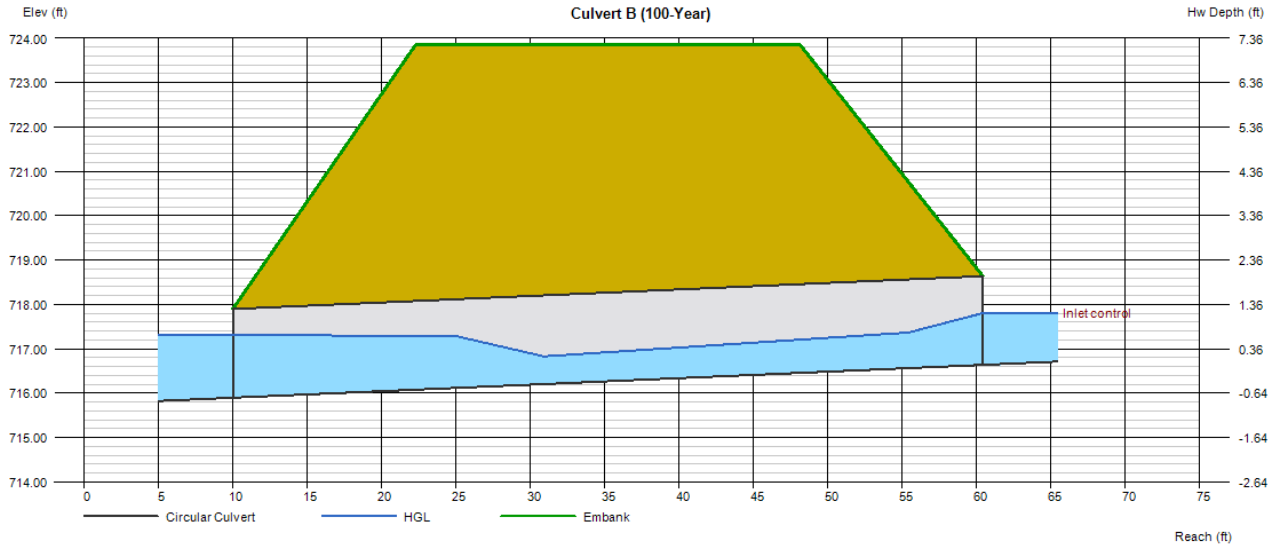
Top Elevation (ft)	=	723.85
Top Width (ft)	=	25.86
Crest Width (ft)	=	0.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	5.65
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	5.65
Qpipe (cfs)	=	5.65
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	2.37
Veloc Up (ft/s)	=	4.52
HGL Dn (ft)	=	717.32
HGL Up (ft)	=	717.48
Hw Elev (ft)	=	717.81
Hw/D (ft)	=	0.58
Flow Regime	=	Inlet Control



Weir Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Nov 7 2019

Culvert B (100-Year)

Rectangular Weir

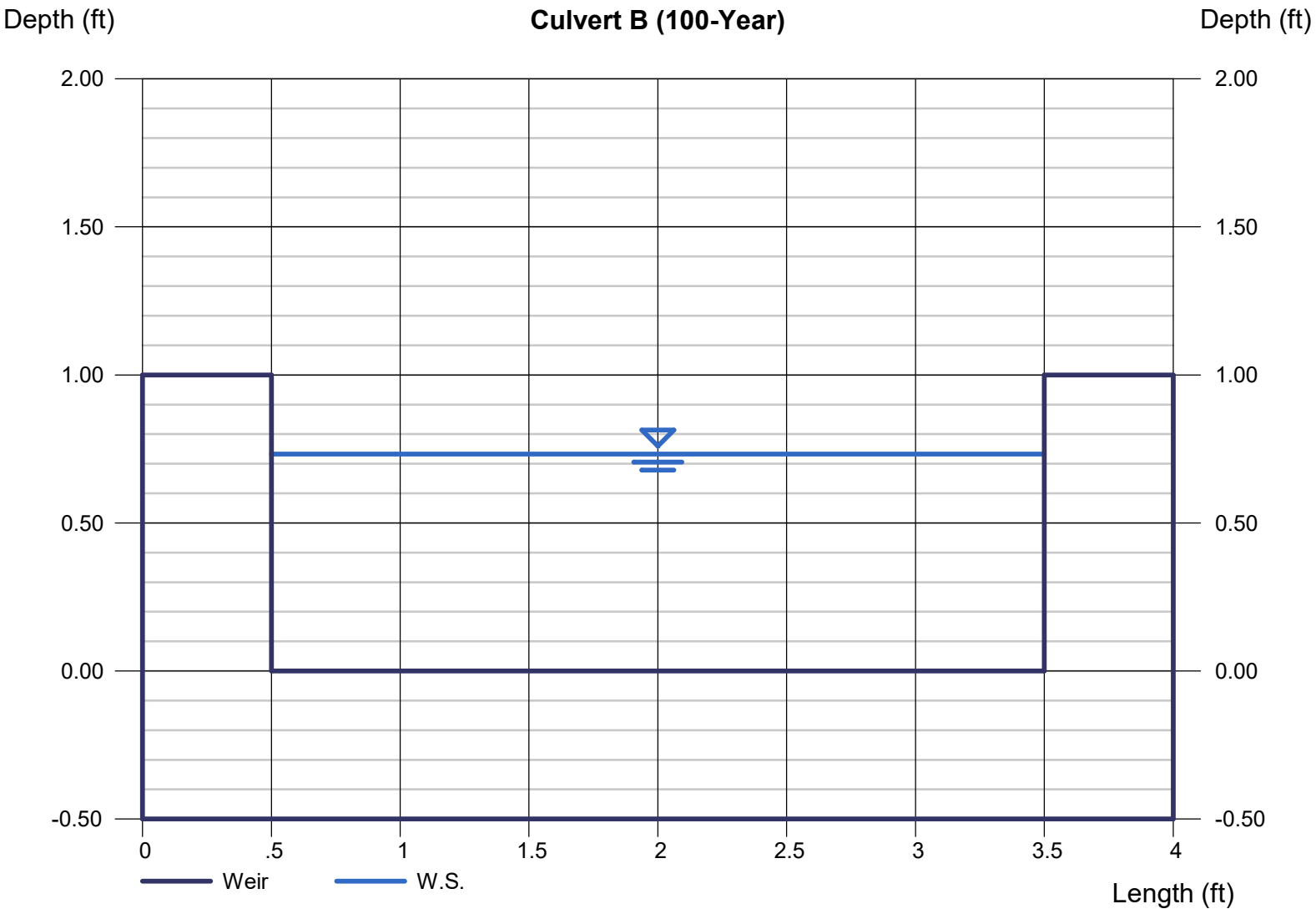
Crest	= Sharp
Bottom Length (ft)	= 3.00
Total Depth (ft)	= 1.00

Calculations

Weir Coeff. Cw	= 3.00
Compute by:	Known Q
Known Q (cfs)	= 5.65

Highlighted

Depth (ft)	= 0.73
Q (cfs)	= 5.650
Area (sqft)	= 2.20
Velocity (ft/s)	= 2.57
Top Width (ft)	= 3.00



APPENDIX B

PROPOSED DITCH CALCULATIONS

SHEET 1 OF 1
JOB # 174-158
PROJECT: Jackson Pike Ditch Calcs

BY: JTH
CHECKED: TJV
DATE: 8/23/2019

Civil & Environmental Consultants, Inc.

DITCH CALC DESIGN

			DRAINAGE AREA (acres)			10 YEAR STORM						
NUM	TYPE	STATION	Δ AREA	C	I (in/hr)	Q (cfs)			DITCH INVERT	DITCH DEPTH	DELTA (ft)	E.O.P. ELEV
101+20	DITCH	0.00	0.18	0.45	6.78				718.24	0.21	1.40	719.85
						0.55						
102+90	DITCH	0.00	1.13	0.45	6.78				717.86	0.50	1.43	719.79
						3.45						
105+25	DITCH	0.00	0.82	0.45	6.78				719.74	0.48	1.01	721.23
						2.50						
112+60	DITCH	0.00	0.79	0.45	6.78				720.24	0.47	2.67	723.38
						2.41						
112+80	DITCH	0.00	0.19	0.45	6.78				720.70	0.24	2.57	723.51
						0.58						
117+00	DITCH	0.00	0.55	0.45	6.78				720.59	0.40	1.51	722.50
						1.68						

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Jun 20 2019

STA 101+20

Trapezoidal

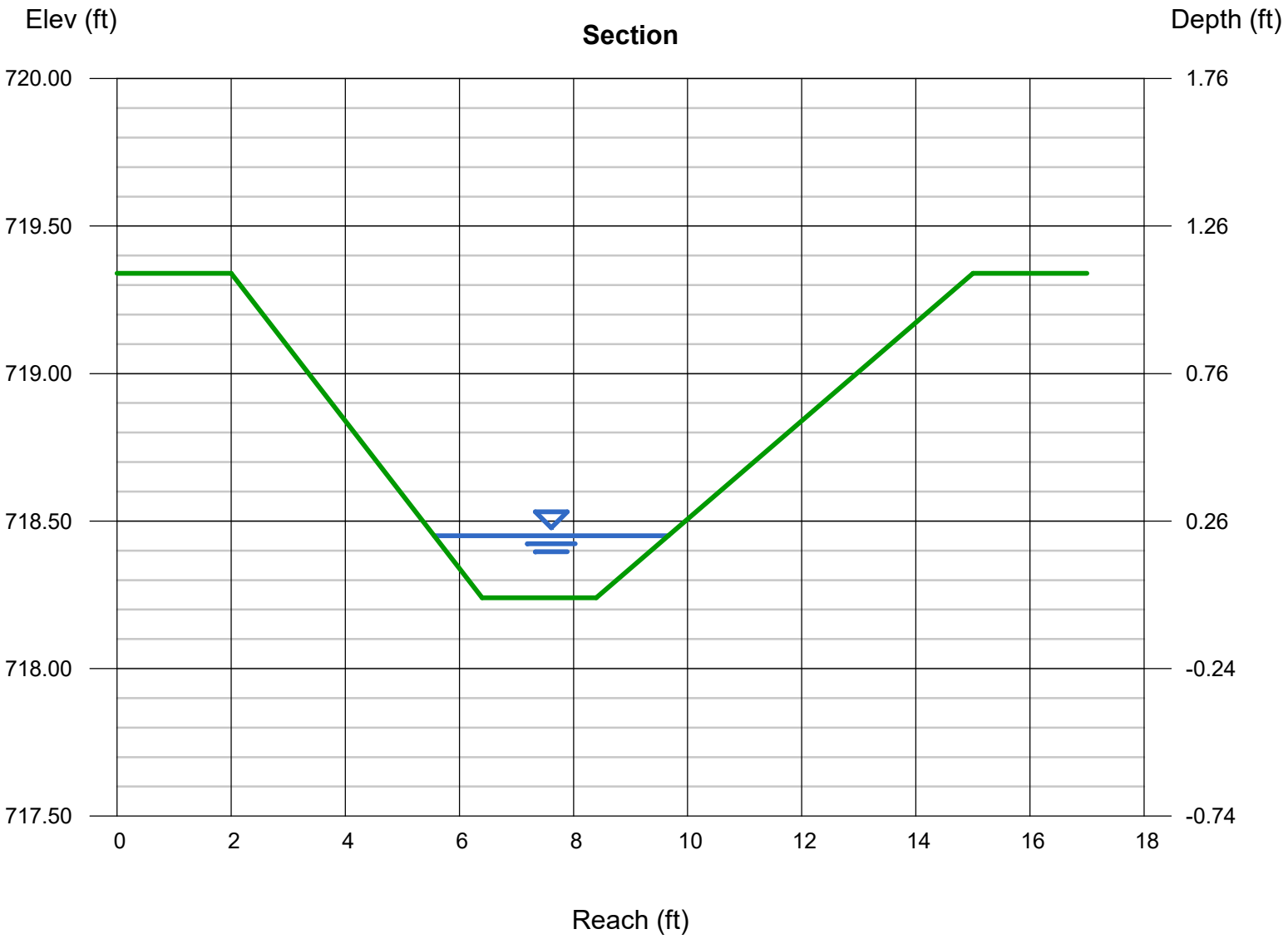
Bottom Width (ft)	= 2.00
Side Slopes (z:1)	= 4.00, 6.00
Total Depth (ft)	= 1.10
Invert Elev (ft)	= 718.24
Slope (%)	= 0.65
N-Value	= 0.040

Calculations

Compute by:	Known Q
Known Q (cfs)	= 0.55

Highlighted

Depth (ft)	= 0.21
Q (cfs)	= 0.550
Area (sqft)	= 0.64
Velocity (ft/s)	= 0.86
Wetted Perim (ft)	= 4.14
Crit Depth, Yc (ft)	= 0.12
Top Width (ft)	= 4.10
EGL (ft)	= 0.22



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Jun 20 2019

STA 102+90

Trapezoidal

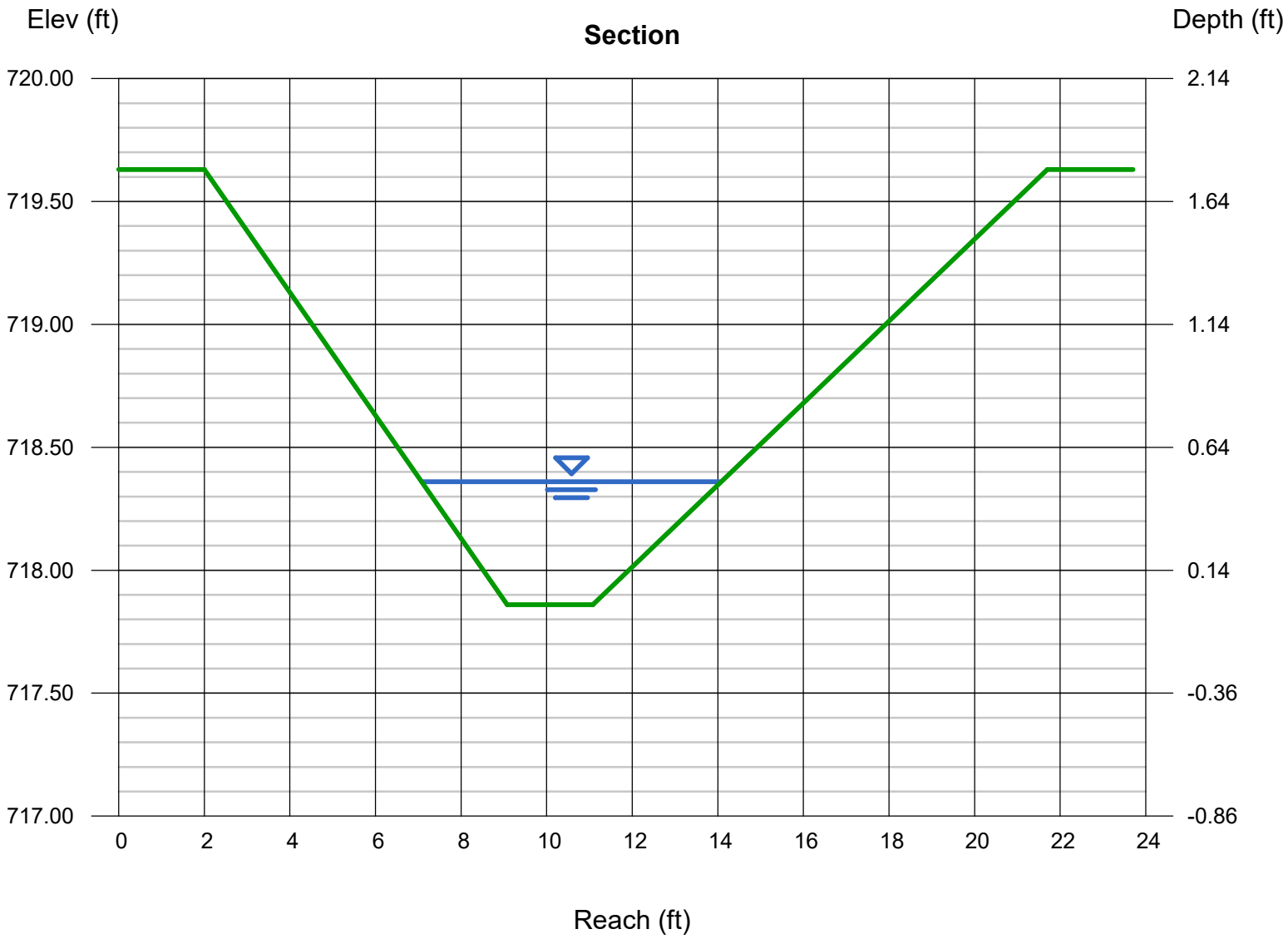
Bottom Width (ft)	= 2.00
Side Slopes (z:1)	= 4.00, 6.00
Total Depth (ft)	= 1.77
Invert Elev (ft)	= 717.86
Slope (%)	= 0.85
N-Value	= 0.040

Calculations

Compute by:	Known Q
Known Q (cfs)	= 3.45

Highlighted

Depth (ft)	= 0.50
Q (cfs)	= 3.450
Area (sqft)	= 2.25
Velocity (ft/s)	= 1.53
Wetted Perim (ft)	= 7.10
Crit Depth, Yc (ft)	= 0.35
Top Width (ft)	= 7.00
EGL (ft)	= 0.54



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Jun 20 2019

STA 105+25

Trapezoidal

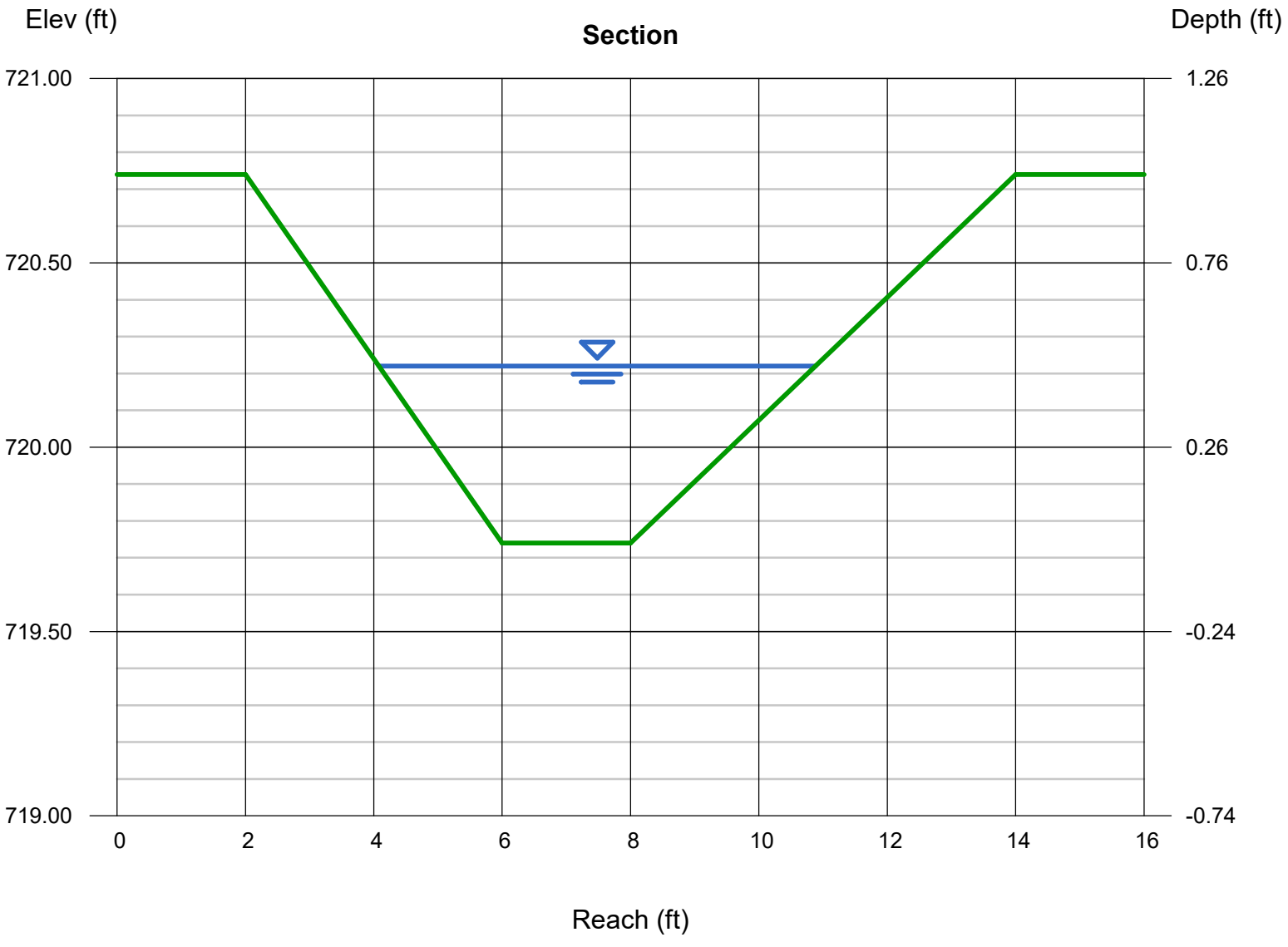
Bottom Width (ft)	= 2.00
Side Slopes (z:1)	= 4.00, 6.00
Total Depth (ft)	= 1.00
Invert Elev (ft)	= 719.74
Slope (%)	= 0.50
N-Value	= 0.040

Calculations

Compute by:	Known Q
Known Q (cfs)	= 2.50

Highlighted

Depth (ft)	= 0.48
Q (cfs)	= 2.500
Area (sqft)	= 2.11
Velocity (ft/s)	= 1.18
Wetted Perim (ft)	= 6.90
Crit Depth, Yc (ft)	= 0.29
Top Width (ft)	= 6.80
EGL (ft)	= 0.50



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Jun 20 2019

STA 112+60

Trapezoidal

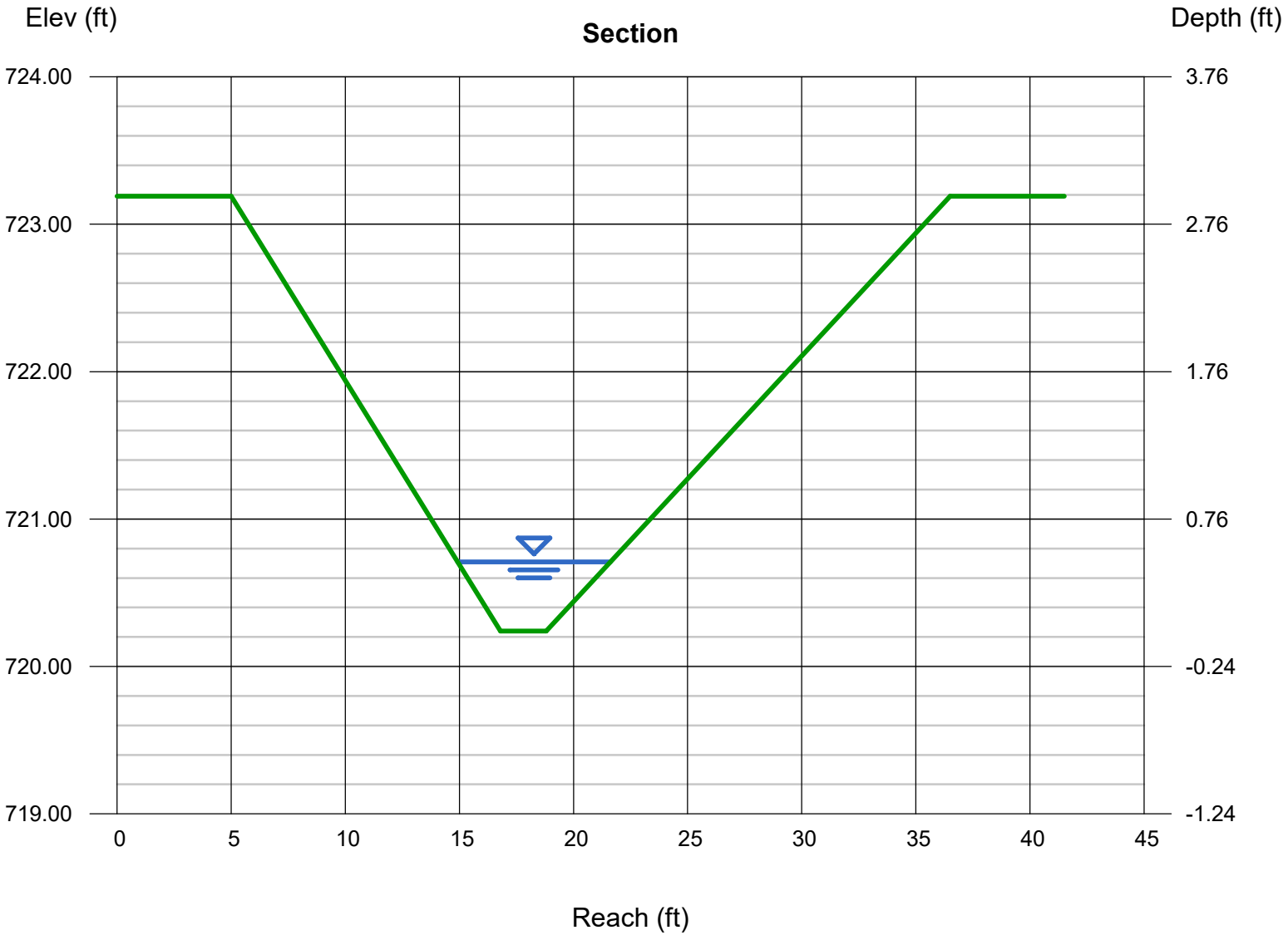
Bottom Width (ft)	= 2.00
Side Slopes (z:1)	= 4.00, 6.00
Total Depth (ft)	= 2.95
Invert Elev (ft)	= 720.24
Slope (%)	= 0.50
N-Value	= 0.040

Calculations

Compute by:	Known Q
Known Q (cfs)	= 2.41

Highlighted

Depth (ft)	= 0.47
Q (cfs)	= 2.410
Area (sqft)	= 2.04
Velocity (ft/s)	= 1.18
Wetted Perim (ft)	= 6.80
Crit Depth, Yc (ft)	= 0.29
Top Width (ft)	= 6.70
EGL (ft)	= 0.49



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Jun 20 2019

STA 112+80

Trapezoidal

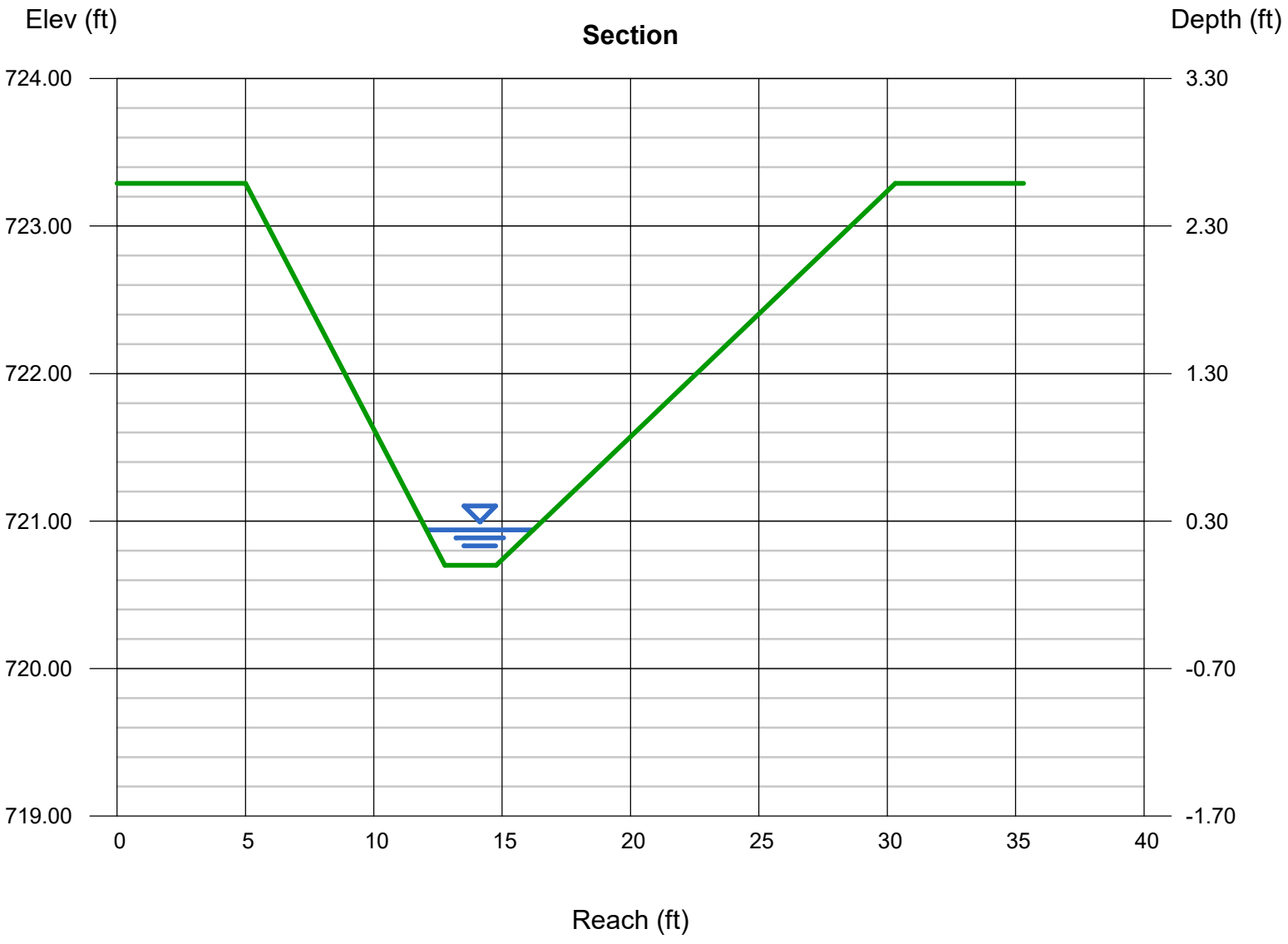
Bottom Width (ft)	= 2.00
Side Slopes (z:1)	= 3.00, 6.00
Total Depth (ft)	= 2.59
Invert Elev (ft)	= 720.70
Slope (%)	= 0.50
N-Value	= 0.040

Calculations

Compute by:	Known Q
Known Q (cfs)	= 0.58

Highlighted

Depth (ft)	= 0.24
Q (cfs)	= 0.580
Area (sqft)	= 0.74
Velocity (ft/s)	= 0.78
Wetted Perim (ft)	= 4.22
Crit Depth, Yc (ft)	= 0.13
Top Width (ft)	= 4.16
EGL (ft)	= 0.25



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Jun 20 2019

STA 117+00

Trapezoidal

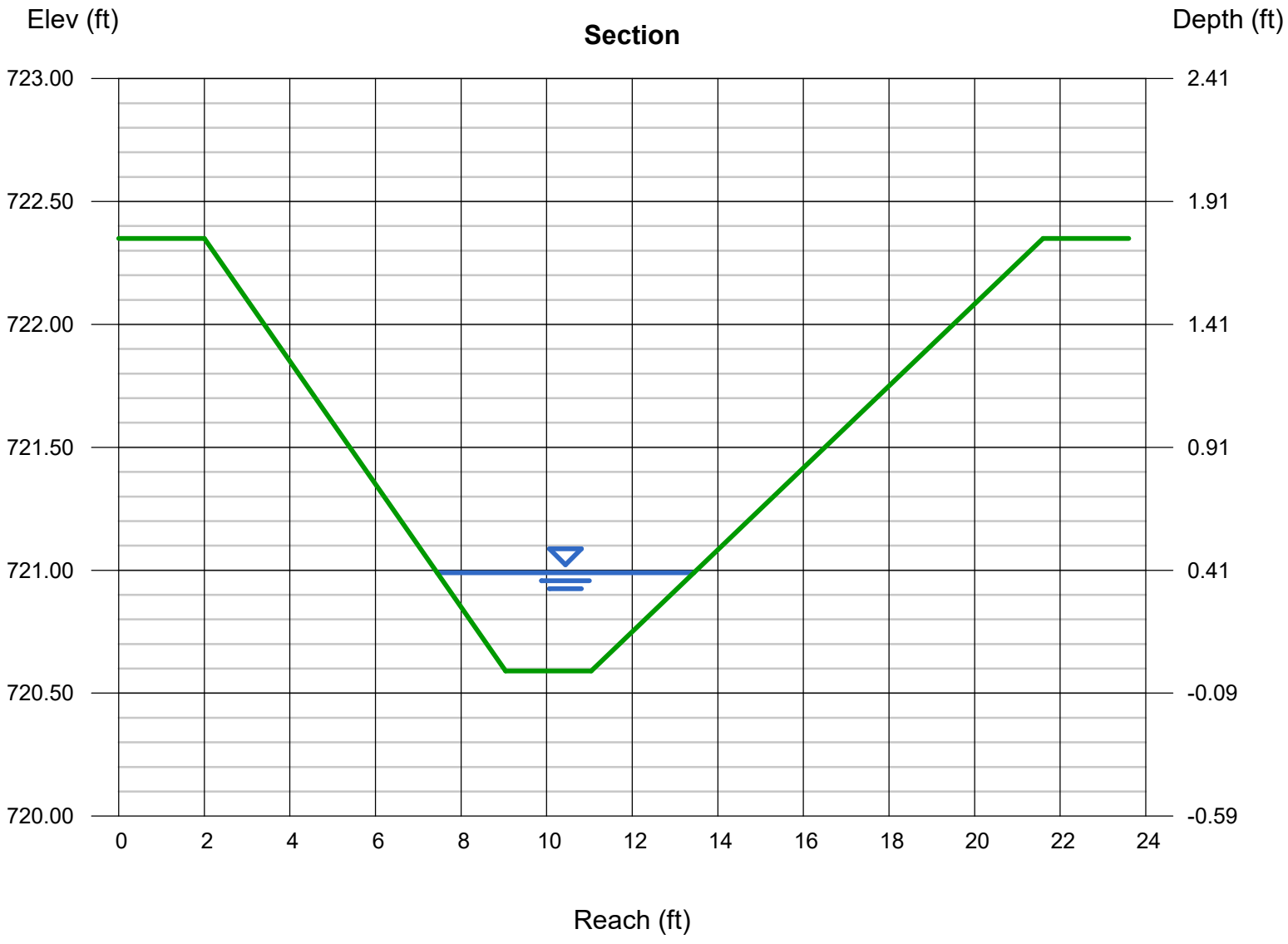
Bottom Width (ft)	= 2.00
Side Slopes (z:1)	= 4.00, 6.00
Total Depth (ft)	= 1.76
Invert Elev (ft)	= 720.59
Slope (%)	= 0.50
N-Value	= 0.040

Calculations

Compute by:	Known Q
Known Q (cfs)	= 1.68

Highlighted

Depth (ft)	= 0.40
Q (cfs)	= 1.680
Area (sqft)	= 1.60
Velocity (ft/s)	= 1.05
Wetted Perim (ft)	= 6.08
Crit Depth, Yc (ft)	= 0.23
Top Width (ft)	= 6.00
EGL (ft)	= 0.42



APPENDIX C

EXISTING CULVERT CAPACITY CALCULATIONS

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Nov 7 2019

Culvert C (25-Year)

Invert Elev Dn (ft)	=	715.31
Pipe Length (ft)	=	52.65
Slope (%)	=	4.08
Invert Elev Up (ft)	=	717.46
Rise (in)	=	12.0
Shape	=	Circular
Span (in)	=	12.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Corrugate Metal Pipe
Culvert Entrance	=	Headwall
Coeff. K,M,c,Y,k	=	0.0078, 2, 0.0379, 0.69, 0.5

Embankment

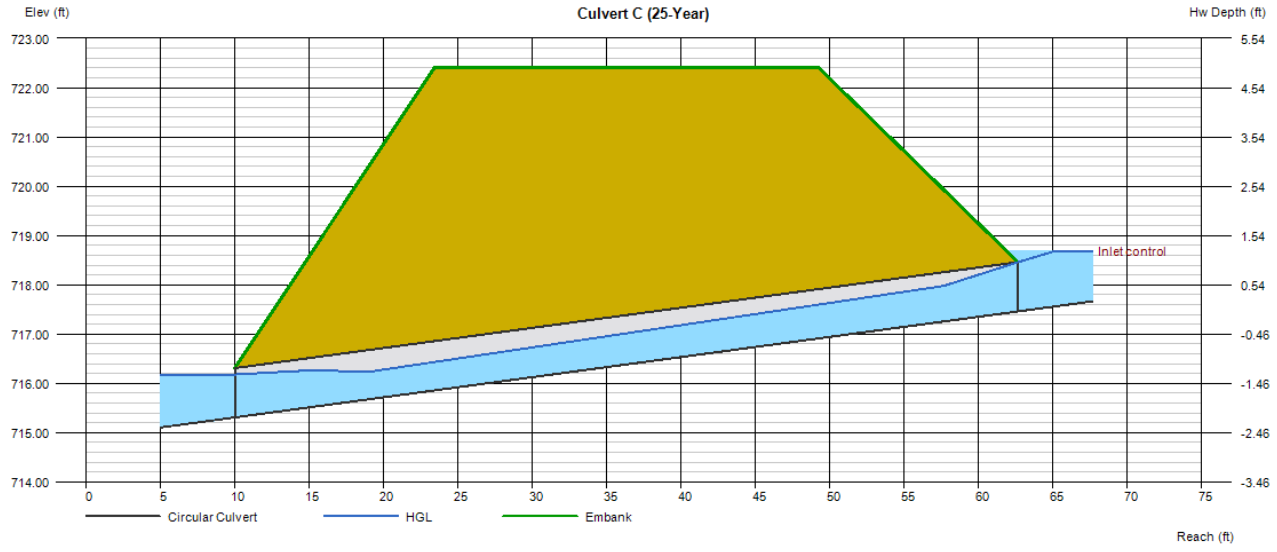
Top Elevation (ft)	=	722.40
Top Width (ft)	=	25.86
Crest Width (ft)	=	0.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	3.01
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	3.01
Qpipe (cfs)	=	3.01
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	4.14
Veloc Up (ft/s)	=	4.81
HGL Dn (ft)	=	716.18
HGL Up (ft)	=	718.20
Hw Elev (ft)	=	718.69
Hw/D (ft)	=	1.23
Flow Regime	=	Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Nov 7 2019

Culvert C (100-Year)

Invert Elev Dn (ft)	=	715.31
Pipe Length (ft)	=	52.65
Slope (%)	=	4.08
Invert Elev Up (ft)	=	717.46
Rise (in)	=	12.0
Shape	=	Circular
Span (in)	=	12.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Corrugate Metal Pipe
Culvert Entrance	=	Headwall
Coeff. K,M,c,Y,k	=	0.0078, 2, 0.0379, 0.69, 0.5

Embankment

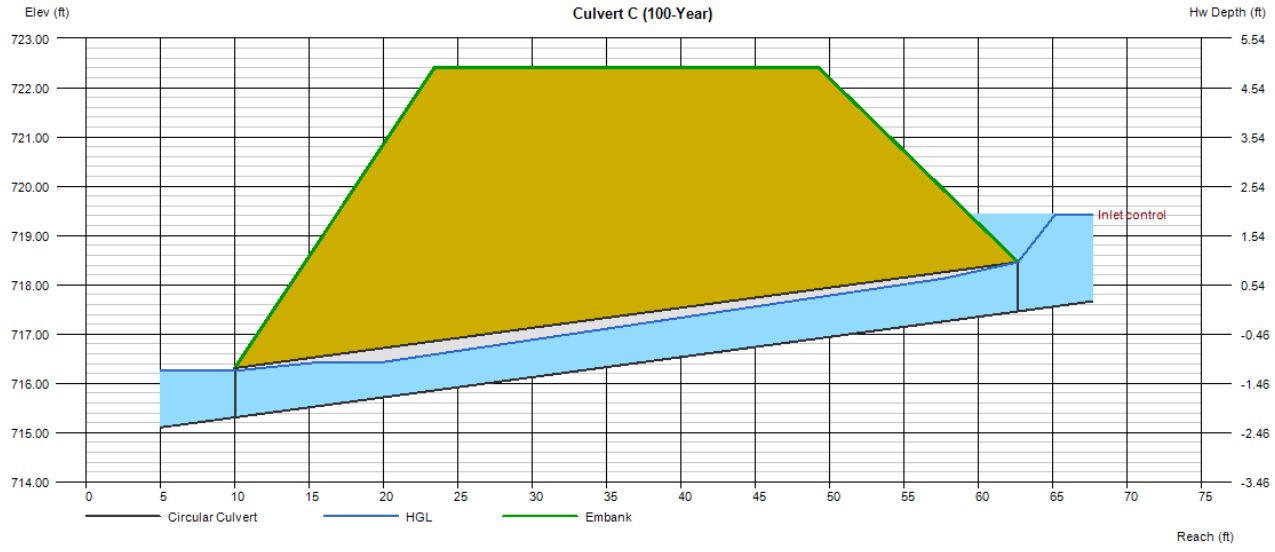
Top Elevation (ft)	=	722.40
Top Width (ft)	=	25.86
Crest Width (ft)	=	0.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	4.59
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	4.59
Qpipe (cfs)	=	4.59
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	5.97
Veloc Up (ft/s)	=	6.21
HGL Dn (ft)	=	716.26
HGL Up (ft)	=	718.35
Hw Elev (ft)	=	719.42
Hw/D (ft)	=	1.96
Flow Regime	=	Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Nov 7 2019

Culvert D (25-Year)

Invert Elev Dn (ft)	=	714.19
Pipe Length (ft)	=	51.59
Slope (%)	=	4.85
Invert Elev Up (ft)	=	716.69
Rise (in)	=	30.0
Shape	=	Circular
Span (in)	=	30.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Corrugate Metal Pipe
Culvert Entrance	=	Headwall
Coeff. K,M,c,Y,k	=	0.0078, 2, 0.0379, 0.69, 0.5

Embankment

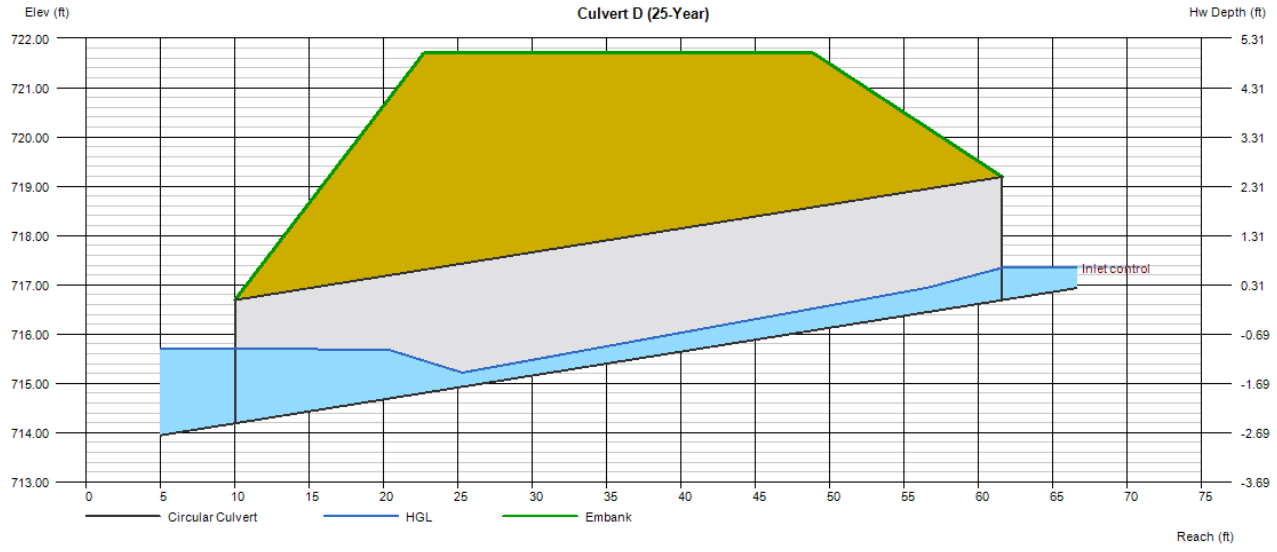
Top Elevation (ft)	=	721.70
Top Width (ft)	=	26.18
Crest Width (ft)	=	0.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	2.61
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	2.61
Qpipe (cfs)	=	2.61
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	0.84
Veloc Up (ft/s)	=	3.45
HGL Dn (ft)	=	715.70
HGL Up (ft)	=	717.22
Hw Elev (ft)	=	717.35
Hw/D (ft)	=	0.26
Flow Regime	=	Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Nov 7 2019

Culvert D (100-Year)

Invert Elev Dn (ft)	=	714.19
Pipe Length (ft)	=	51.59
Slope (%)	=	4.85
Invert Elev Up (ft)	=	716.69
Rise (in)	=	30.0
Shape	=	Circular
Span (in)	=	30.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Corrugate Metal Pipe
Culvert Entrance	=	Headwall
Coeff. K,M,c,Y,k	=	0.0078, 2, 0.0379, 0.69, 0.5

Embankment

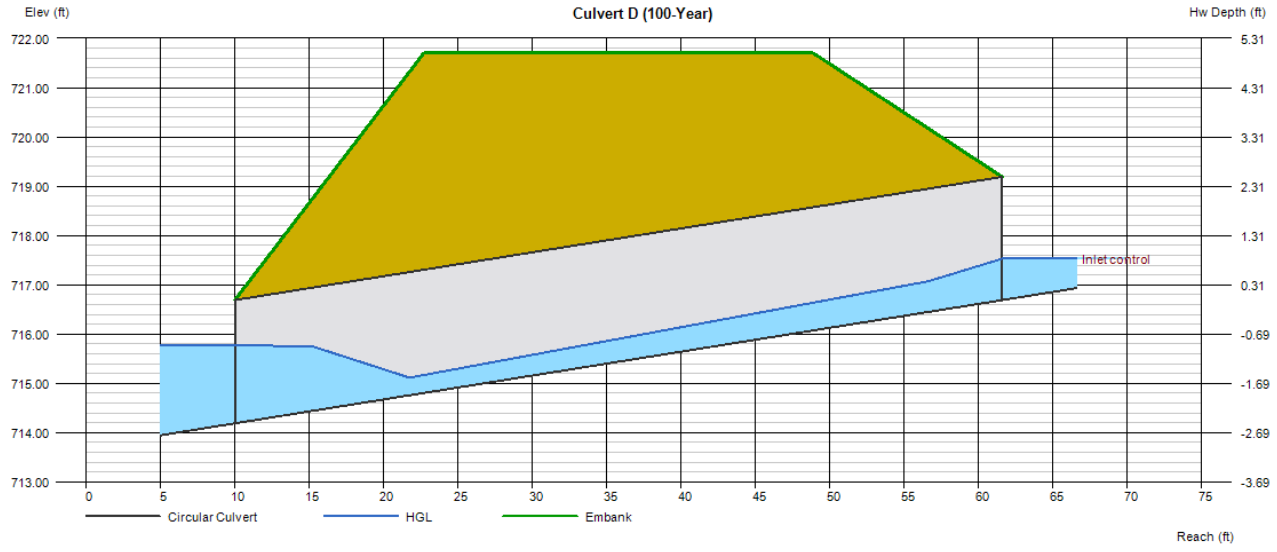
Top Elevation (ft)	=	721.70
Top Width (ft)	=	26.18
Crest Width (ft)	=	0.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	4.03
Tailwater Elev (ft)	=	(dc+D)/2

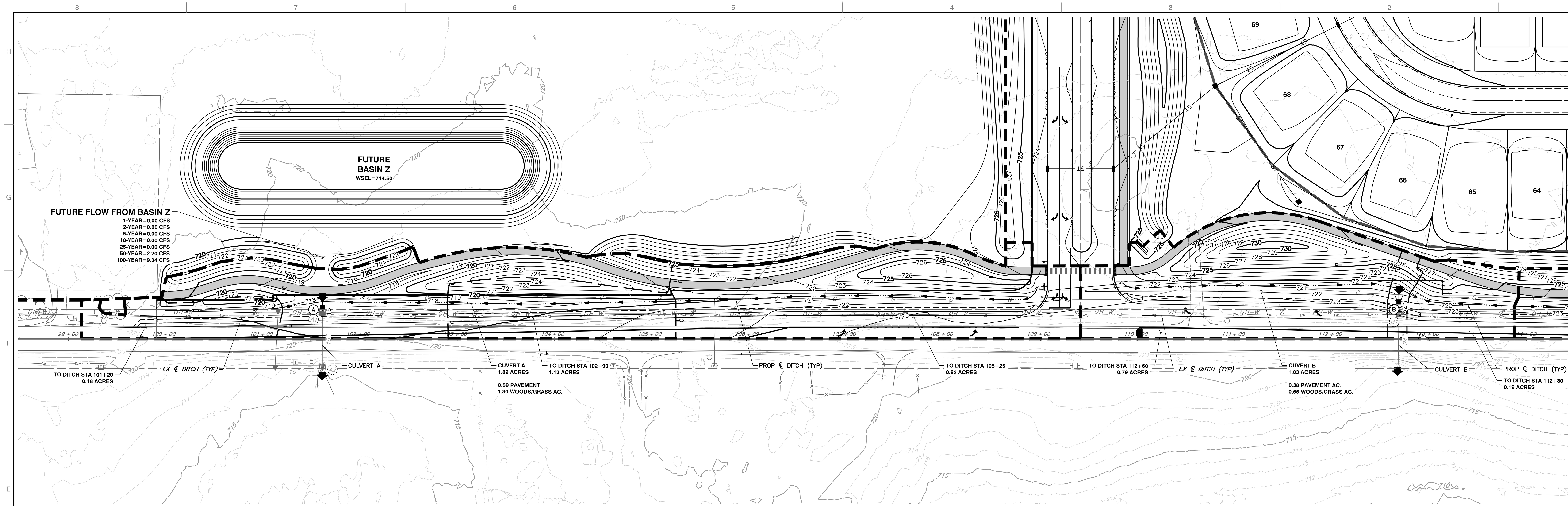
Highlighted

Qtotal (cfs)	=	4.03
Qpipe (cfs)	=	4.03
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	1.23
Veloc Up (ft/s)	=	3.89
HGL Dn (ft)	=	715.77
HGL Up (ft)	=	717.35
Hw Elev (ft)	=	717.53
Hw/D (ft)	=	0.34
Flow Regime	=	Inlet Control

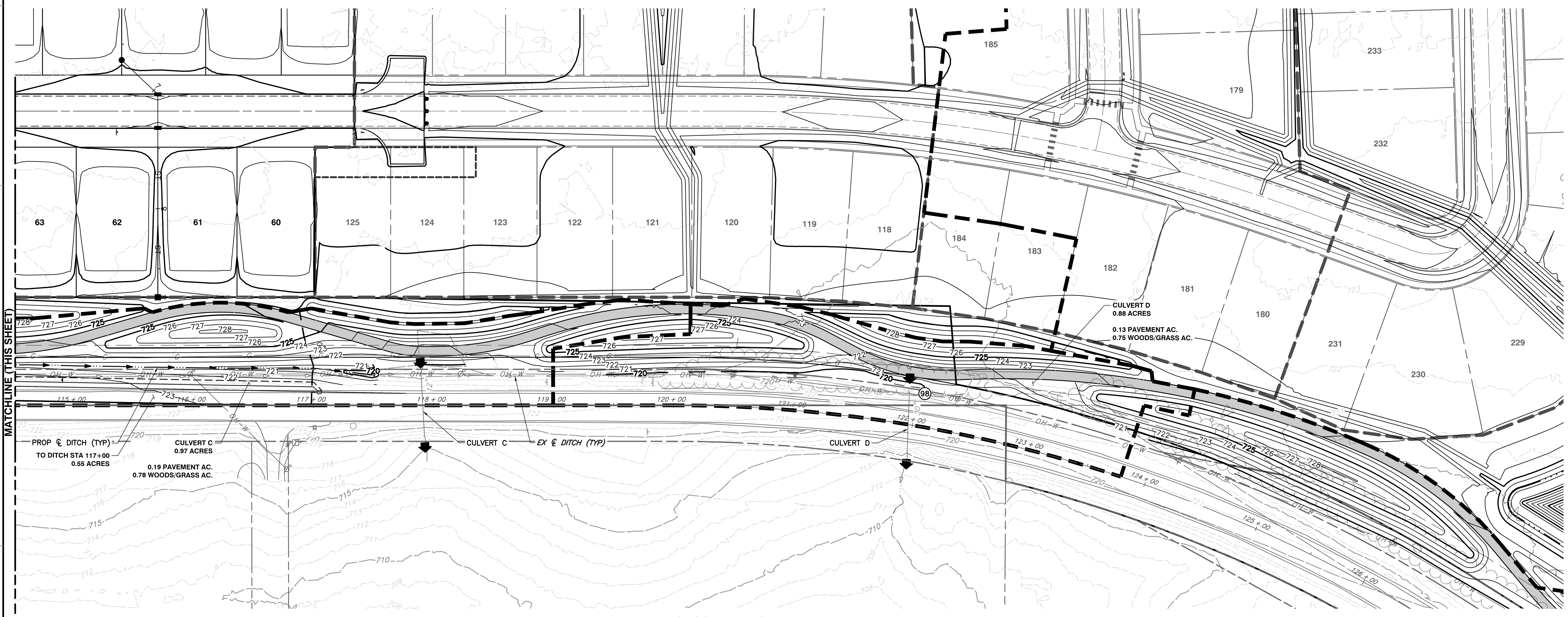


APPENDIX D

POST-DEVELOPED TRIBUTARY MAP



JACKSON PIKE CULVERT TRIBUTARY MAP
NORTH
SCALE 1"=50'
SCALE IN FEET
0 50 100



JACKSON PIKE CULVERT TRIBUTARY MAP
NORTH
SCALE 1"=50'
SCALE IN FEET
0 50 100

LEGEND

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- EXISTING EASEMENT
- EXISTING SUBJECT PROPERTY LINE
- EXISTING ADJACENT PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING CENTERLINE
- EXISTING EDGE OF PAVEMENT
- EXISTING WATER BODY
- EXISTING FEMA FLOODWAY
- EXISTING FEMA FLOODPLAIN
- EXISTING FEMA ZONE "X"
- EXISTING DRAINAGE SWALE
- EXISTING WETLAND
- EXISTING SANITARY SEWER LINE
- EXISTING SANITARY MANHOLE
- EXISTING STORM SEWER LINE
- EXISTING STORM STRUCTURE
- EXISTING WATER LINE
- EXISTING FIRE HYDRANT
- PROPOSED SUBJECT PROPERTY LINE
- PROPOSED PROPERTY LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED PHASE LINE
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED WATER BODY
- PROPOSED SIDEWALK
- PROPOSED SHARED-USE PATH
- PROPOSED CENTERLINE
- PROPOSED CURB

REVISION RECORD

NO.	DATE	DESCRIPTION

Civil & Environmental Consultants, Inc.
250 Old Wilson Bridge Road · Suite 250 · Worthington, OH 43085
614-540-6633 · 888-598-6808
www.cecinc.com

GRAND COMMUNITIES, LLC.
FARMSTEAD
PHASES 1 & 2
CITY OF GROVE CITY
FRANKLIN COUNTY, OHIO

JACKSON PIKE
POST-DEVELOPMENT TRIBUTARY MAP

DATE:	NOVEMBER 2019	DRAWN BY:	JTH
DWG SCALE:	1"=50'	CHECKED BY:	TJV
PROJECT NO:	174-158	APPROVED BY:	

DRAWING NO.:
SWM-4
SHEET 1 OF 1

APPENDIX E

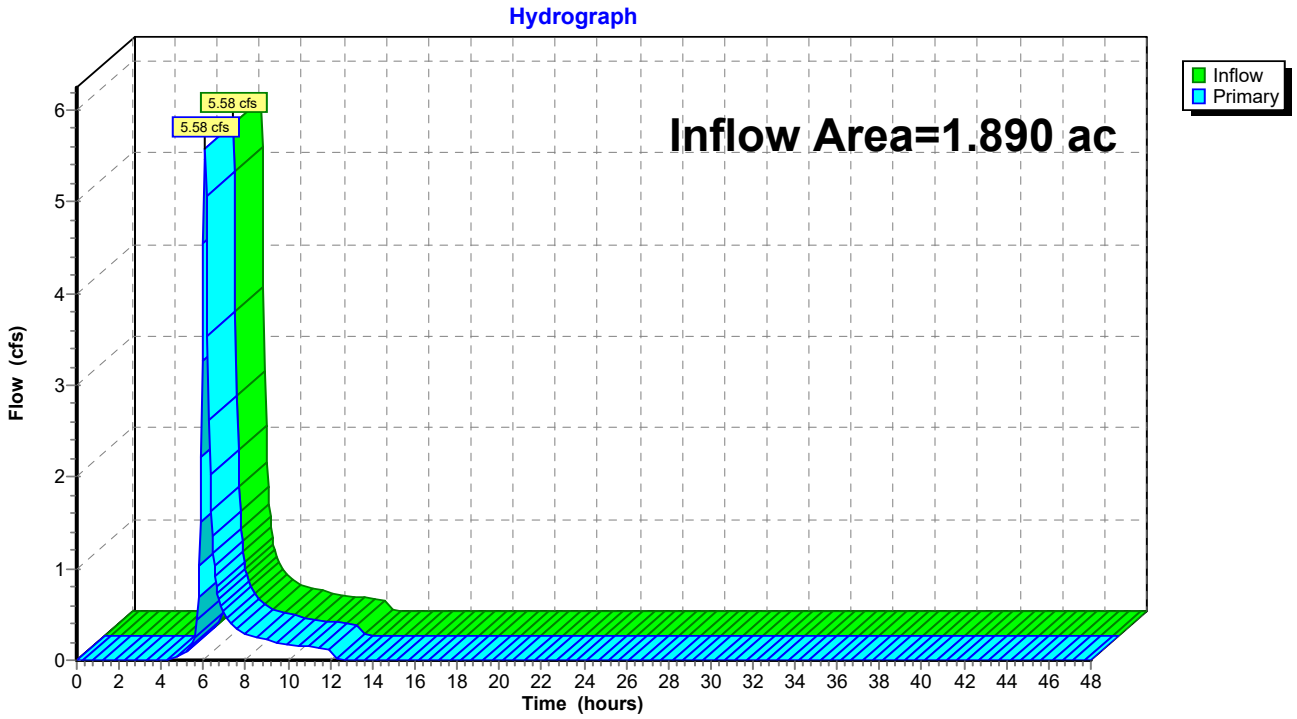
PROPOSED CULVERT HYDROCAD REPORTS

Summary for Link PCU-A: Culvert A (Outfall 2)

Inflow Area = 1.890 ac, 31.22% Impervious, Inflow Depth = 1.94" for 25-Year event
Inflow = 5.58 cfs @ 6.08 hrs, Volume= 0.306 af
Primary = 5.58 cfs @ 6.08 hrs, Volume= 0.306 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link PCU-A: Culvert A (Outfall 2)

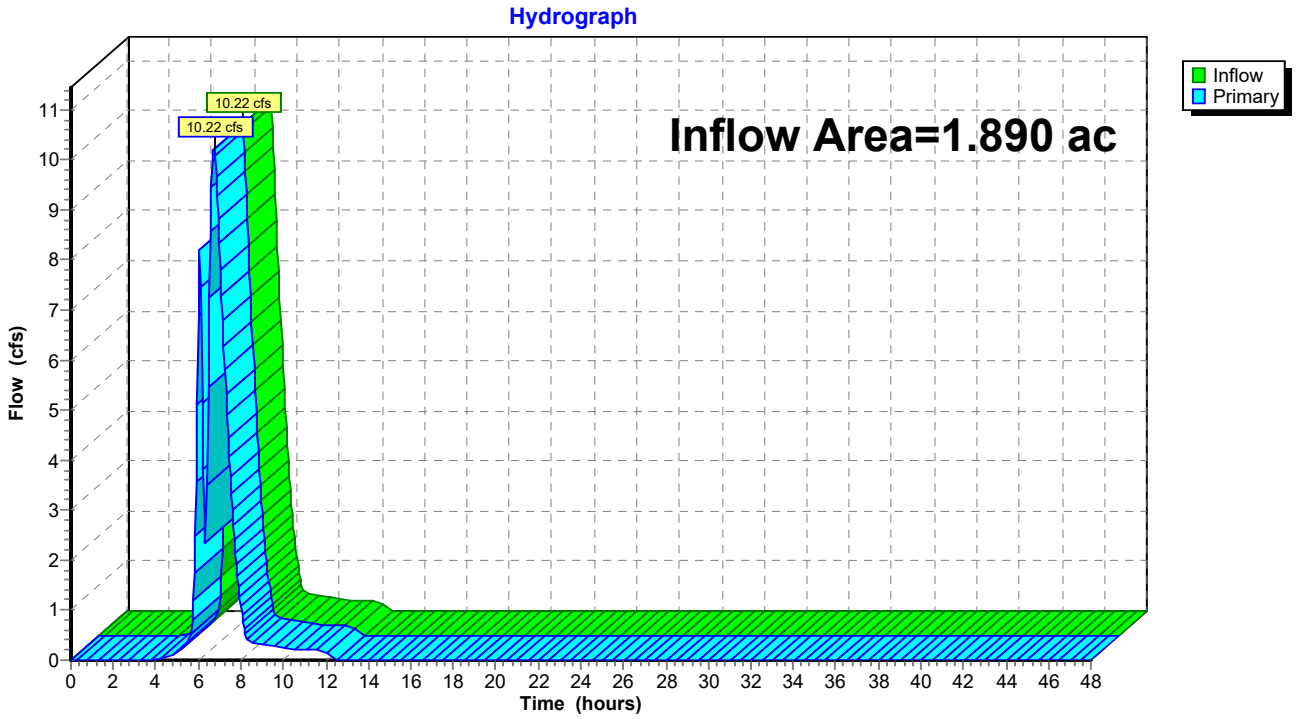


Summary for Link PCU-A: Culvert A (Outfall 2)

Inflow Area = 1.890 ac, 31.22% Impervious, Inflow Depth = 7.23" for 100-Year event
Inflow = 10.22 cfs @ 6.73 hrs, Volume= 1.139 af
Primary = 10.22 cfs @ 6.73 hrs, Volume= 1.139 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link PCU-A: Culvert A (Outfall 2)



Summary for Subcatchment CU-B: Culvert B (Outfall 1)

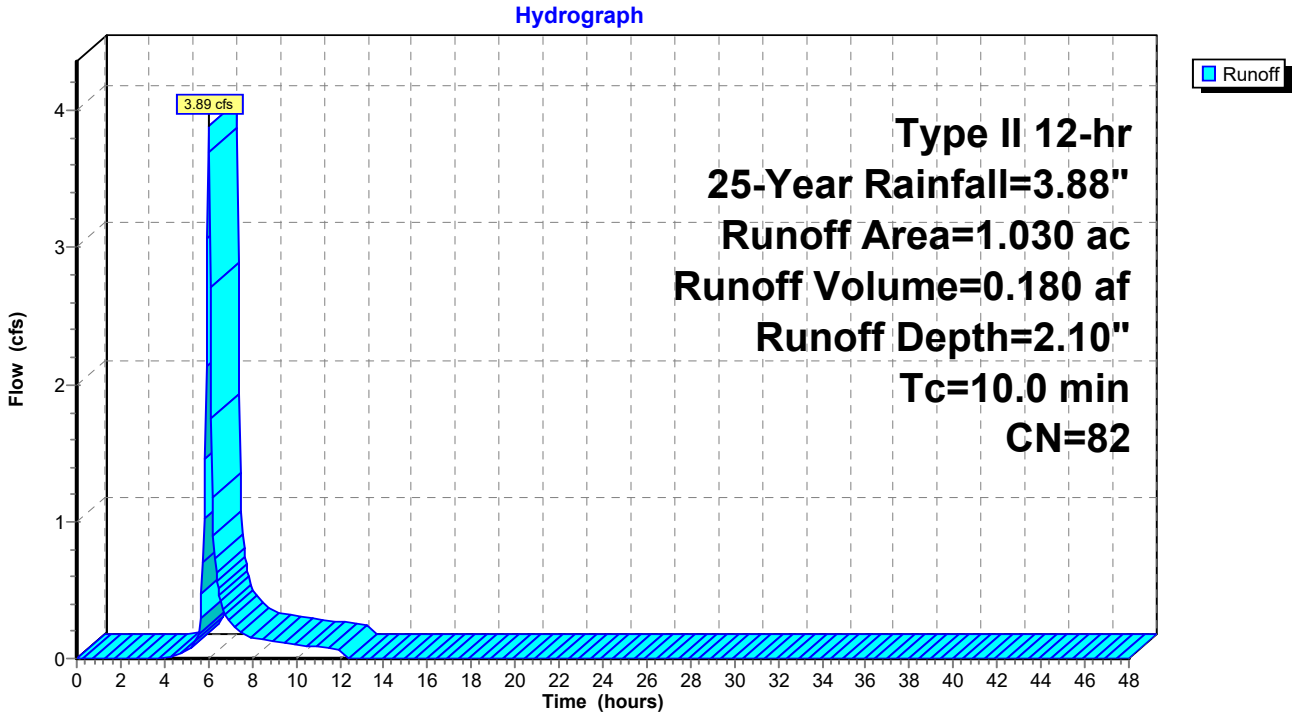
Runoff = 3.89 cfs @ 6.02 hrs, Volume= 0.180 af, Depth= 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 12-hr 25-Year Rainfall=3.88"

Area (ac)	CN	Description
0.650	72	Woods/grass comb., Good, HSG C
0.380	98	Paved parking, HSG C
1.030	82	Weighted Average
0.650		63.11% Pervious Area
0.380		36.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment CU-B: Culvert B (Outfall 1)



Summary for Subcatchment CU-B: Culvert B (Outfall 1)

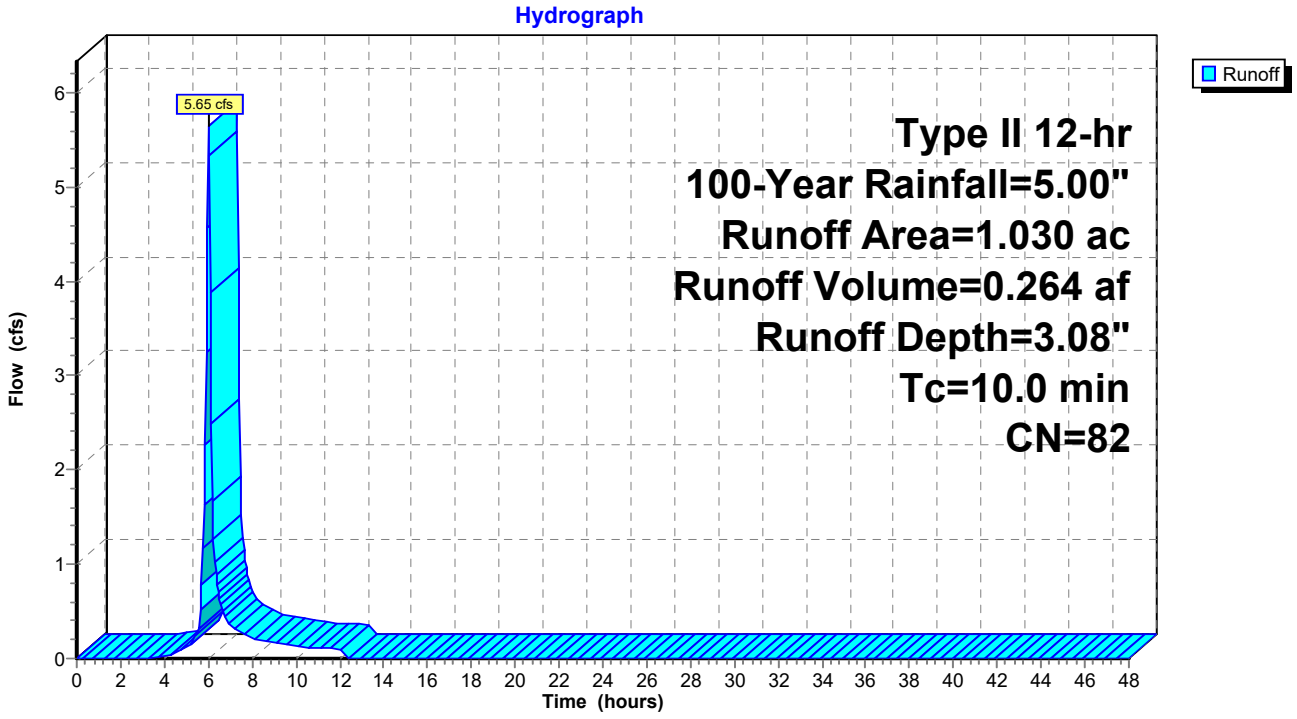
Runoff = 5.65 cfs @ 6.01 hrs, Volume= 0.264 af, Depth= 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 12-hr 100-Year Rainfall=5.00"

Area (ac)	CN	Description
0.650	72	Woods/grass comb., Good, HSG C
0.380	98	Paved parking, HSG C
1.030	82	Weighted Average
0.650		63.11% Pervious Area
0.380		36.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment CU-B: Culvert B (Outfall 1)



Summary for Subcatchment CU-C: Culvert C (Outfall 5A)

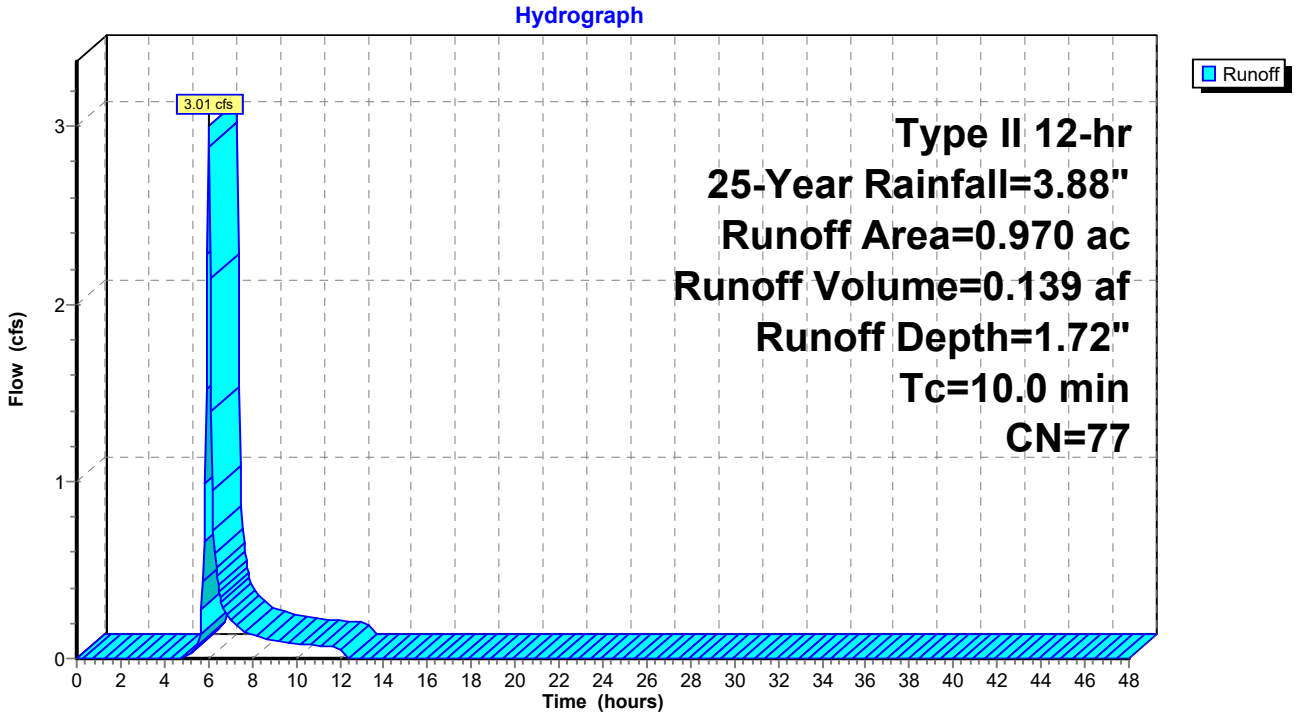
Runoff = 3.01 cfs @ 6.02 hrs, Volume= 0.139 af, Depth= 1.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 12-hr 25-Year Rainfall=3.88"

Area (ac)	CN	Description
0.780	72	Woods/grass comb., Good, HSG C
0.190	98	Paved parking, HSG C
0.970	77	Weighted Average
0.780		80.41% Pervious Area
0.190		19.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment CU-C: Culvert C (Outfall 5A)



Summary for Subcatchment CU-C: Culvert C (Outfall 5A)

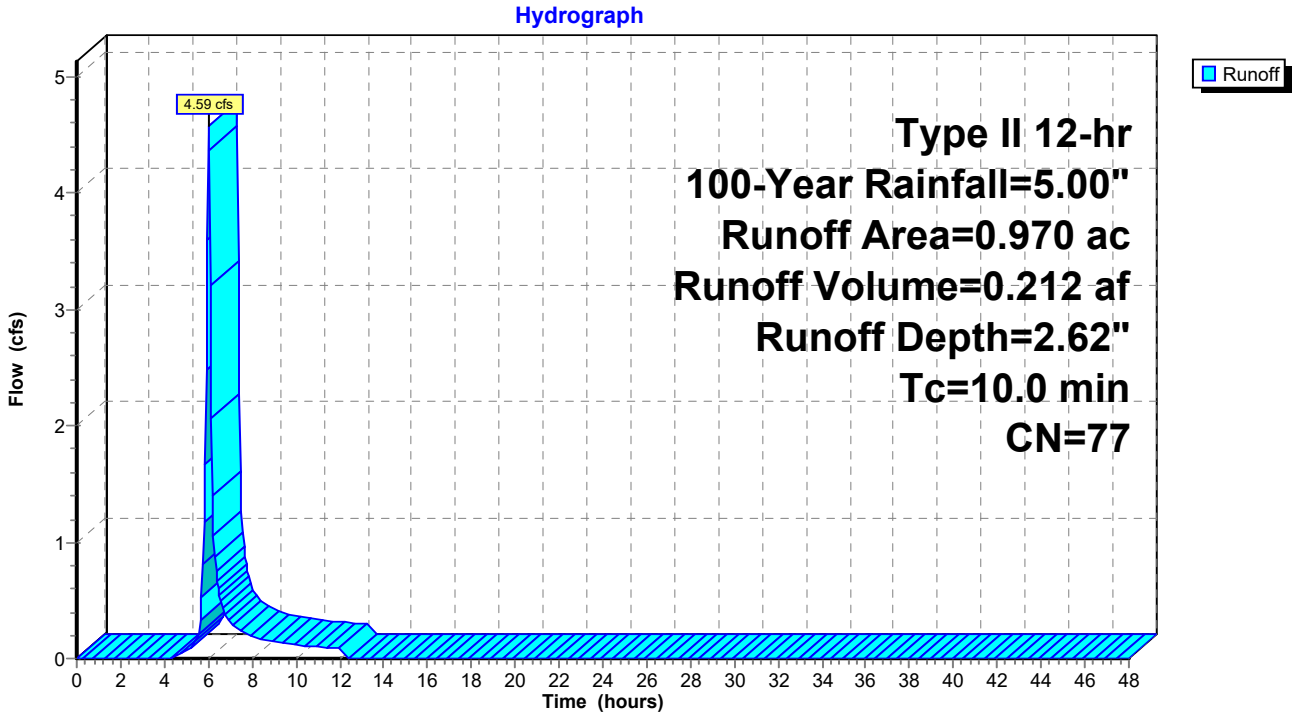
Runoff = 4.59 cfs @ 6.02 hrs, Volume= 0.212 af, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 12-hr 100-Year Rainfall=5.00"

Area (ac)	CN	Description
0.780	72	Woods/grass comb., Good, HSG C
0.190	98	Paved parking, HSG C
0.970	77	Weighted Average
0.780		80.41% Pervious Area
0.190		19.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment CU-C: Culvert C (Outfall 5A)



Summary for Subcatchment CU-D: Culvert D (Outfall 5B)

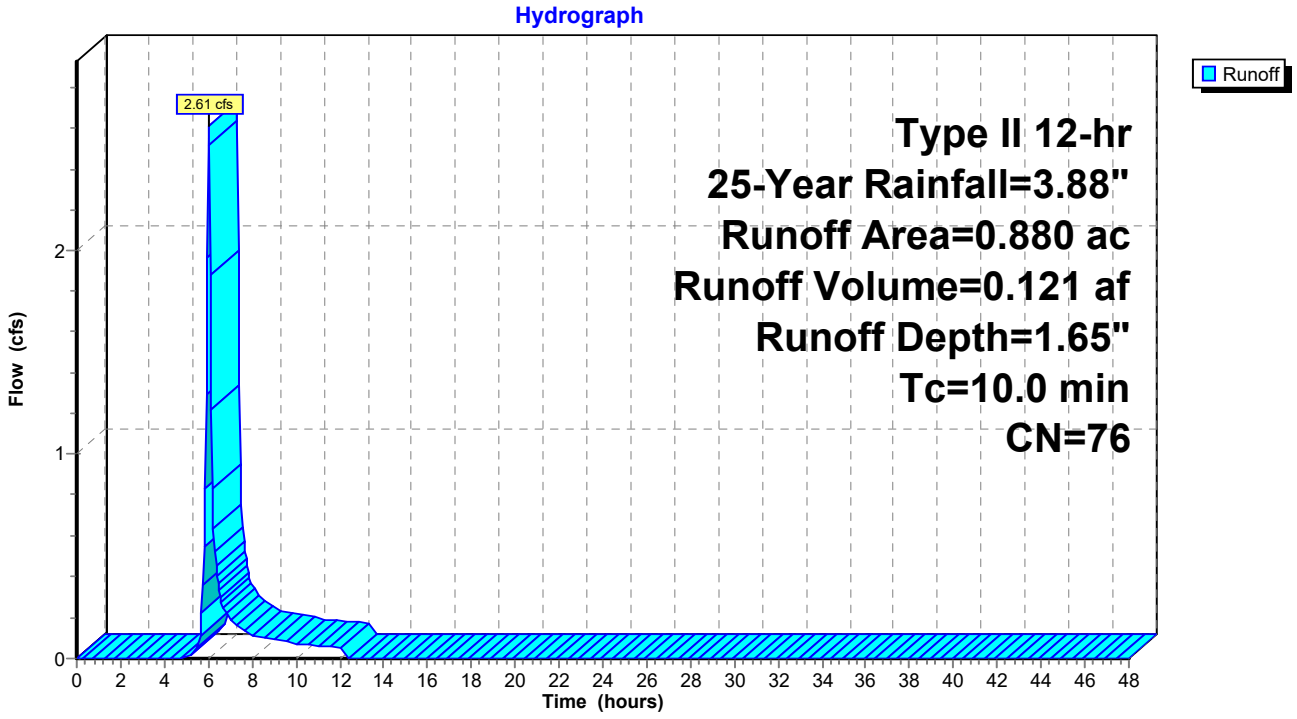
Runoff = 2.61 cfs @ 6.02 hrs, Volume= 0.121 af, Depth= 1.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 12-hr 25-Year Rainfall=3.88"

Area (ac)	CN	Description
0.750	72	Woods/grass comb., Good, HSG C
0.130	98	Paved parking, HSG C
0.880	76	Weighted Average
0.750		85.23% Pervious Area
0.130		14.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment CU-D: Culvert D (Outfall 5B)



Summary for Subcatchment CU-D: Culvert D (Outfall 5B)

Runoff = 4.03 cfs @ 6.02 hrs, Volume= 0.186 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 12-hr 100-Year Rainfall=5.00"

Area (ac)	CN	Description
0.750	72	Woods/grass comb., Good, HSG C
0.130	98	Paved parking, HSG C
0.880	76	Weighted Average
0.750		85.23% Pervious Area
0.130		14.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment CU-D: Culvert D (Outfall 5B)