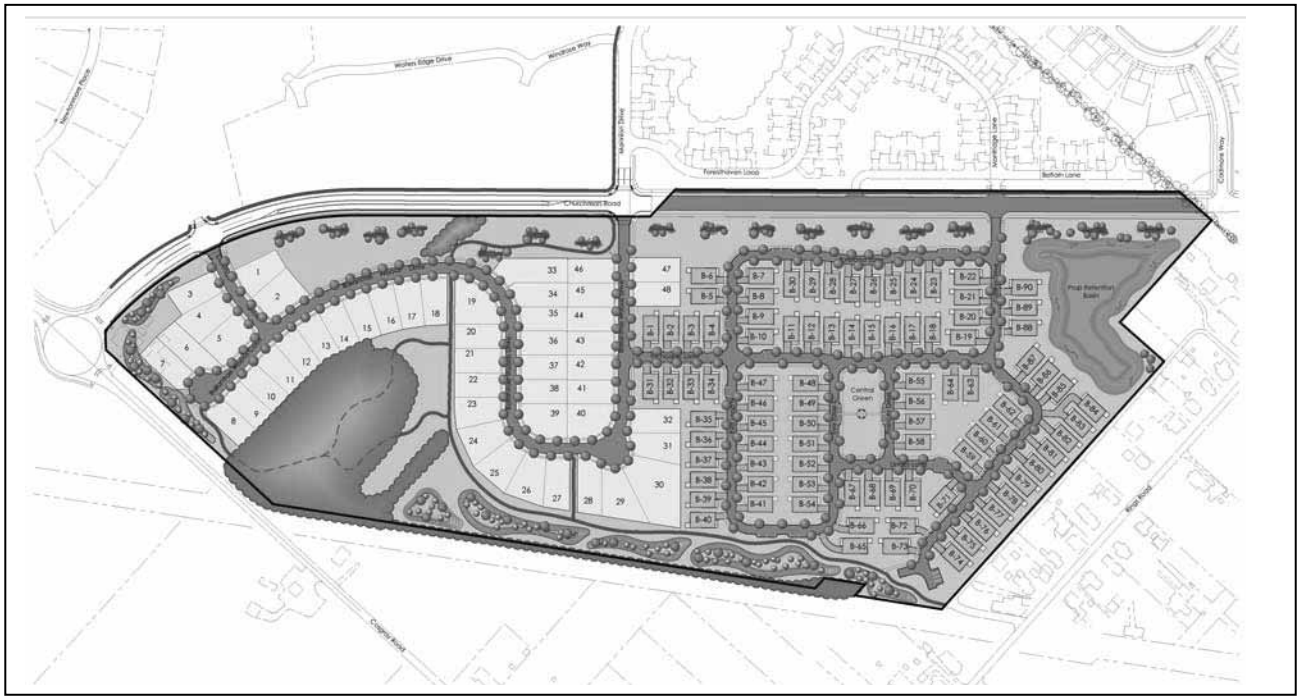
Preliminary Development Plan

BALLANTRAE WOODS

Dublin, Ohio



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Dublin Planning and Zoning Commission

SECTION I – Development Overview

I. INTRODUCTION TO BALLANTRAE WOODS

Ballantrae Woods is proposed as a 49.6 acre residential development located south of Cosgray Road and west of proposed Churchman Road. The southern portion of the property abuts lots in the Village of Amlin. The CSX railroad track is the western border of the site.

The site proposes 138 units for a density of 2.78 dwelling units per acres, well below the 5 units per acre permitted in the Comprehensive plan. The Ballantrae Woods development will be easily accessible by the neighboring Ballantrae developments through extension of and connection to the overall street and pedestrian networks. The product mix is intended to provide two housing opportunities: traditional single family homes on lots and detached condominium homes. The development will be constructed as a single unified community that attracts residents of varying ages and family types.

Large setbacks are planned for open space along Churchman Road and the railroad tracks. Sidewalks and pedestrian paths link all the open spaces within the community and extending into the neighboring developments. Connections will be made to the Woodlands and the Amlin Village via pedestrian paths. The woodlot as mentioned above will be preserved and a community green will be provided as a central gathering point within the condominium area.

Both the single family and condominium home exteriors will be designed to be reminiscent of traditional architectural styles from the turn of the century similar to those seen in neighborhoods like Clintonville and Bexley where the homes have front porches, modest front setbacks emphasizing neighborhood interaction and walkability while de-emphasizing the garage as the predominant façade element. Colors, materials and architectural features will be unified between the single family and condominim homes.

Ballantrae Woods has a focus to provide a different neighborhood that meets the needs of a changing market to provide for both family and active adults who may not want the traditional single family home any longer but still be part of a vibrant neighborhood located close to community services, shopping and work.

II. REZONING STATEMENT

A. Explain the relationship of the proposed development to existing and future land uses in the surrounding area, the street system, community facilities, open space system, services, and other public improvements

The proposed Ballantrae Woods development is located east of the Conrail railroad tracks, north of the Village of Amlin, west of the Woodlands condominiums and the proposed Glen at Ballantrae development. It is located northwest of the Links at Ballantrae. The new development will utilize Churchman Road to access the community. Churchman Road is currently under design by the City of Dublin. The first phase of Churchman will be constructed south from Cosgray Road to Marmion Drive by Edwards Development and then the second phase will extend south to tie into Rings Road. The development will utilize a green buffer area along the Churchman Road frontage and preserve a wood lot and large buffer along the CSX railroad to provide large green spaces within the development. A central green is proposed within the condominium portion of the site. The new development will utilize existing sanitary sewer, water and storm water connections to serve the 49.6 ± acre subdivision.

B. State how the proposed rezoning and development relate to the existing land use character of the vicinity.

The proposed subdivision complements the condominium development located across Churchman Road and the housing in the Village of Amlin with the proposed condominium component of the plan. The detached condominiums will mirror the density and character of those adjacent areas. The single family housing site relates to the density and character of development taking place to the northeast of the subdivision (the Ballantrae subdivision areas). The proposed mixture of condominium and single family housing will mesh with the existing neighborhood character and provide a buffer to the railroad tracks to the west.

C. State how the proposed rezoning and development relate to the Dublin Community Plan. If the proposal is inconsistent with the Community Plan, then justify the proposed deviation from the Community Plan.

The Dublin Community Plan shows the subject area as mixed residential medium density on its future land use map. The text within the plan indicates that these areas will have greater walkability and pedestrian orientation with a maximum density of 5.0 du/ac. The proposed subdivision proposes walkability with short blocks, connection to a multi-use path along the railroad track and connections to Churchman Road and other developed subdivisions. The proposed density of 2.78 du/ac is well below the 5.0 dwelling units per acres specified in the Comprehensive Plan. No deviations are necessary from the Comprehensive Plan.

D. Explain how the proposed rezoning meets the criteria for Planned Districts [Code Section 153.052(B)]

(1) **Consistency with Dublin Zoning Code:** Yes, the proposed development is consistent with the purpose; intent and applicable standards of the Zoning Code as has been

previewed and studied by Dublin City staff to insure elements are meeting the appropriate sections of the Zoning Code.

(2) **Conformance with adopted plans:** Yes, the proposed development is in conformity with the Community Plan, Bikepath Plan, Thoroughfare Plan as they apply to this site. All the applicable plan have been reviewed to insure the proposed density is within keeping the parameters of the Community Plan, that Churchman Road is completed and connected to existing roads to serve the area and that bikeway and pedestrian connections are created to insure walkability and ease of travel between the abutting neighborhoods. The three (3) connections to Churchman Road and subsequent connection to Cosgray and Rings Road will not overburden those rights of way or any other street connections in the area.

(3) **Advancement of general welfare & orderly development:** Yes, the proposed development advances the general welfare of the City and its immediate vicinity and will not in any way impede the normal and orderly development and improvements of the surrounding areas.

(4) **Effects on adjacent uses:** Yes, the proposed subdivision is appropriately located in the City so that the use and value of property within and adjacent to the area and safeguarded as there is residential housing to the northeast, east and south and the 138 units proposed on the site are appropriate to the area.

(5) **Adequacy of open space for residential development:** Yes, the proposed subdivision will have sufficient open space areas to meet the objectives of the Community Plan. There are large green spaces proposed along Churchman Road and the railroad right of way as well as the preservation of a large wood lot which will add to the open spaces area found with the subdivision.

(6) **Protection of natural features and resources**: The site has been primarily used for agricultural uses with the exception of the stand of trees located along the railroad tracks and under the proposed plan the trees will be preserved thereby respective of the natural features found on the site.

(7) **Adequate infrastructure**: Yes, adequate utilities, access roads, stormwater drainage, stormwater retention and all other necessary facilities will be provided with the development of the 49.6 acre tract.

(8) **Traffic and pedestrian safety:** Yes, adequate measures will be taken to provide the necessary ingress and egress to the site. Three access points will be provided to Churchman Road, minimizing traffic congestion on the surrounding public streets. The plan for access to perimeter public street and interior street are designed to maximize public safety and to promote pedestrian and bike circulation throughout the subdivision and to other abutting subdivisions.

(9) **Coordination & integration of building &site relationships:** Yes, the relationship of the proposed housing units provides coordination and integration within the development. There will be two types of communities created within the subdivision that will each individually stand on its own as well as work within the larger context of the community and thereby maintain the quality image that Dublin is known for within the Central Ohio area.

(10) **Development layout and intensity:** The homes have been designed to be reminiscent of a village with smaller lots, traditional architecture, and an emphasis on the streetscape. A central green is proposed in the middle of the development. The single family lots are designed within the existing site features and appear almost as a small conservation development surrounded by green spaces.

(11) **Stormwater Management:** Adequate provisions are made for retention and release of stormwater off the site. The site is primarily flat and served as agricultiral fields farming field before development. Manmade systems will be developed and installed to handle stormwater that is created by the development. There will be a single retention pond located in the southeast corner of the site for stormwater management

(12) **Deviations:** There are no deviations from the zoning code anticipated at this time. The site plan has been laid out to comply with all applicable zoning code and subdivision standards.

(13) **Design and Appearance:** The building designs will meet or exceed the quality of buildings in the surrounding area and all applicable appearance code standards of the city code. The developer proposes a traditional architectural style that will be unique to the area and provide an alternate architectural character in this area of the city.

(14) **Development Phasing:** The phasing of the subdivision will occur in an orderly manner with infrastructure developed to serve each phase and not disrupt any surrounding areas.

(15) **Adequacy of public services:** The proposed subdivision can be adequately served by the existing or planned public improvements as Churchman Road will be completed as a part of this development and thereby create a planned road connection between Rings Road and Cosgray Road without having to cross the railroad tracks. The development of the subdivision will not impair the existing public service systems provided for in the area.

(16) **Infrastructure Contributions**: The applicant's contributions to the public infrastructure are consistent with the Thoroughfare Plan. Phase 1 of Churchman Road will be constructed by Edwards Development from Cosgray Road to Marmion Drive concurrent with the construction of this development. The second phase of Churchman from Marmion to the portion constructed by the Links at Ballantrae is contained within the city's current Capital Improvements Plan. Required right of way for Phase 2 will be dedicated as part of the Woods at Ballantrae development to the City with terms of dedication to be determined. Churchman will create a new connection between Rings Road and Cosgray

Road that will serve this development the adjacent Ballantrae community and larger area.

E. If a previous application to rezone the property has been denied by City Council within the last twelve months, list when and state the basis for reconsideration as noted in Code Section 153.234.

No application has been previously submitted for the property for consideration by the Dublin City Council.

SECTION II – Development Standards

I. OVERALL DEVELOPMENT STANDARDS

This development shall be in accordance with Dublin Code at the time of development unless noted otherwise in the overall development standards or subarea standards.

The following standards shall be applicable to subareas as noted.

A. **Density:** Total site density shall not exceed 2.78 dwelling units per acre based on 49.6± acres for a total of 138 dwelling units.

B. **Parking:** All parking requirements shall be in accordance with Dublin code at the time of development except on street parking as noted in Subarea B.

C. **Model Homes and Sales Offices**

1. Model homes and sales offices shall be permitted within Subareas A and B in accordance with Dublin Code requirements.

D. **Residents Association**

1. Applicant will establish a Master Owners Association responsible for maintenance of amenities common to the overall community.

2. A Home Owners Association will be established for Subarea A and a Condominium Owners Association for Subarea B.

E. **Entry Features**

1. Entry features are permitted in each Subarea at entry points designated in the PDP with final design, location and landscape to be submitted for approval at time of Final Development Plan.

2. Entry features may be located within the setbacks in each Subarea but shall not prohibit clear sight distance or cause safety concerns.

3. Entry features may include but not be limited to fences, posts, columns, walls, trellises, gazebos, signs, landscaping, signage, logo etc.

F. **Architectural Diversity (Applies to Subarea A Only)**

1. A matrix has been provided to promote architectural diversity for the front building facades for single family homes.

2. Diversity shall be achieved by restricting the same front facades as follows:

a. No home lot to the left or right of the subject lot shall have the same front façade as the subject lot and

b. No home directly across the street and one lot to the left or right of that lot shall have the same front façade as the subject lot. However, this requirement may be adjusted depending on specific site conditions. An example would be a home across the street facing on a different street.

G. **Reserve Ownership and Maintenance**

Reserve	Ownership	Maintained By
A	CITY	MOA
B	MOA	MOA
C	MOA	MOA
D	MOA	MOA
E-M	COA	COA

MOA=Master Owner Association COA=Condominium Owners Association

H. **Churchman Road Alignment:** Churchman Road as shown on the plan reflects the design currently provided by the City of Dublin. Design may change during final engineering.

II. SUBAREA STANDARDS

Subarea A

Subarea A is comprised of approximately 23.1 acres of single family homes located east of Cosgray Road and southwest of the proposed Churchman Road right of way.

A. **Permitted Uses:** Single Family Residential, one principle structure per lot

B. **Density:** A maximum of 48 residential units

C. **Front Yard Building Setback:**

1. The front yard building setback shall be 20' from the right of way.

2. Corner lots shall have a 20' front yard building setback from both rights of way.

D. **Side Yard Building Setback:** 5' per side

E. **Rear Yard Setback:**

1. Rear yard setbacks shall be 20'.

2. A 10' encroachment shall be permitted in the rear yard setback for unenclosed patios and decks.

F. **Lot Width:** 60' minimum at the building line

G. **Lot Depth:** Each lot will provide a minimum of 65' buildable depth.

H. **Open Space and Pedestrian Connectivity**

1. Open space and pedestrian paths shall be provided per the Preliminary Development Plan.

2. An open space of 50' from the right of way of Cosgray Road shall be provided. No portion of any lot may encroach into this space.

3. An open space along the Churchman Road right of way shall be provided. This open space shall contain an 8' asphalt path extending from Churchman Road along Lots 33 and 46, extending across Ballantrae Woods Drive between Lots 18 and 19 through the open space.

4. An 8' asphalt path shall be provided between Lots 27 and 28.

5. The woodlot of approximately 2.6 acres shall be dedicated to the City of Dublin and maintained by the MOA.

6. An open space of 100' in depth shall be provided along the railroad tracks. No portion of any lot shall encroach into this space. The 8 foot asphalt path shall be extended through this space connecting to Subarea B.

I. **Materials:**

1. Permitted cladding materials will be brick, stone/synthetic stone, stucco/synthetic stucco, wood and fiber cement siding (*eg* Hardiplank). Other high quality materials may be approved in the Final Development Plan with examples of successful, high quality installations used with appropriate architectural detailing.

2. Secondary materials for trim and ornamentation include gypsum reinforced fiber cement trim, wood, vinyl, and decorative synthetic millwork for exterior applications. However, in no case may horizontal vinyl lap siding be used.

3. Permitted roofing materials include 30 year or better dimensional asphalt composite shingles, wood shingles and shakes, metal tiles or standing seam, slate and ceramic tile. "Engineered" wood or slate, as well as other high quality roofing materials, may be approved in the Final Development Plan with examples of successful, high quality installations.

J. **Architectural Requirements:**

1. General:

a. The architectural theme shall have a traditional character as reflected in the examples of Architectural Character.

b. In order to carry the neighborhood theme through both Subareas, all homes will have a mailbox of a single design and color.

c. Colors utilized on the homes will be from a traditional color palette from a major paint manufacturer.

d. Dublin Residential Appearance code applies unless in conflict with specific standards herein.

2. Garages and Parking:

a. Garage doors shall be de-emphasized and shall not be treated as decorative elements.

b. Garage door color shall complement the primary color used on the home.

c. All homes will have a minimum two car garage.

d. A front load garage shall have a minimum driveway length of 19 feet exclusive of sidewalks.

e. The percentage of garage door to the overall front façade may be greater than 35% but may not exceed 43%. Three car garages may exceed 43% of the front facade. However, the third car garage must be a single door, setback a minimum of 2' from the 2 car garage to reduce the impact from the street.

f. All front loaded garages shall be located behind the front façade. A porch shall be considered part of the front façade as long as it has a roof.

3. Roofs: Roof slopes to be min. 6/12 except porch roofs which may be less.

4. Front Porches: Front porches shall be required on all homes with a minimum 6' depth.

5. Windows:

a. Windows without shutters shall be wrapped with trim

b. Windows shall have grid patterns used on all four sides of the building

6. Shutters:

a. Shutters shall be used judiciously but shall not be required on every window or on every elevation.

b. Shutters shall be equal to the size of full window. Shutter hardware shall not be required.

c. If shutters are used on the home, the shutter color shall match the front door color.

K. **Landscaping and Entry Features:** Landscaping and screening, including tree preservation, shall be in accordance with Dublin Code except as noted below.

1. Entry Features:

a. Entry features shall be provided at both entries to Subarea A along Churchman Road. The entry opposite Marmion Drive shall be the Primary Entry Feature with the entry closer to Cosgray as a secondary entry Feature.

b. The entry feature designs and open space frontage along Churchman Road shall be landscaped in a manner reflective of the character of the adjacent Ballantrae development. Large vertical stone slabs shall be incorporated at entries along Churchman Road and augmented with trees and landscaping.

c. Within the open space along Churchman Road rock/rubble wall sections shall be installed and landscaping.

d. The Conceptual Landscape Plan provides entry feature locations and conceptual imagery.

e. Detailed landscape plans for the entry features and Churchman Road open space shall be provided at time of Final Development Plan.

2. Railroad Buffer

a. Within the 100' building setback along the west property line, a buffer shall be required to provide both a physical and visual barrier to the CSX railroad track.

b. This buffer shall be a minimum of 6' in height with a minimum opacity of 75% from proposed grade at installation.

c. A landscape plan for this buffer including any proposed fencing shall be submitted for approval with the Final Development Plan. Any fencing shall be limited to 6' in height.

L. **Tree replacement:**

1. A detailed tree replacement plan shall be provided at time of Final Development Plan.

2. With the exception of required street tree plantings and landscape requirements for single family, all other deciduous and evergreen tree plantings including the Churchman Road and Cosgray Road buffers, entry features and railroad buffer may be counted toward tree replacement.

M. **Miscellaneous:**

1. The rights of way serving the single family homes shall be 50 feet. The pavements width shall be 28 feet as indicated on the plat.

2. Minimum center line radii shall be 100'.

Subarea B

Subarea B is comprised of approximately 24.3 acres of detached residential housing located south of Subarea A and extending to existing homes in Amlin.

A. **Permitted Uses:** Residential housing composed of detached condominium homes accessed by private drives.

B. **Density:** A maximum of 90 residential units

C. **Setbacks**

1. Garage Setback:

a. For a front load garage, the garage shall be setback a minimum of 19 feet from the back of the sidewalk.

b. In the case where there is no sidewalk, the front load garage shall be setback a minimum of 19 feet from the back of the curb.

c. For a side load/courtyard garage, the garage shall be setback a minimum of 15 feet from the sidewalk

d. In the case where there is no sidewalk, the side load garage shall be setback a minimum of 15 feet from the back of the curb.

e. For homes located adjacent to two streets, if such home has a side load garage accessed from the secondary street, it must be setback 19 feet from the street or 19 feet from the sidewalk, if one exists.

2. Building Setback:

a. The front of the principal structure or porch shall have a minimum setback of 14 feet from the sidewalk.

b. Where there is no sidewalk, the front of the principal structure or porch shall have a minimum setback of 14 feet from the back of the curb.

c. For homes located adjacent to two streets, the front of the home must adhere to the above setback standards. The side of the home shall be setback a minimum of 14 feet from the secondary street.

d. A minimum distance of 12 feet shall be maintained between homes located side by side.

e. A minimum distance of 45 feet shall be maintained between the primary structure of back to back homes. This distance shall be exclusive of patios or porches.

f. A minimum distance of 30 feet shall be maintained between a home backing to the side of another home. This distance shall be exclusive of patios or porches.

3. Perimeter Setbacks:

a. The minimum building setback from Churchman Road right of way shall be 100'.

b. The minimum building setback from the west property line adjacent to the railroad track shall be 100 feet except for Condominium Home 65 which shall have a minimum setback of 70 feet due to the irregular property line configuration.

c. The minimum building setback from the south property line adjacent to Amlin shall be 25 feet. Any patio, unenclosed porch or deck may extend a maximum of 50% into this perimeter setback.

D. **Open Space and Pedestrian Connectivity**

1. Open space and pedestrian paths shall be provided per the Preliminary Development Plan.

2. An open space shall be provided along the Churchman Road right of way per the Preliminary Development Plan.

3. A central green of approximately .5 acres shall be provided as shown on the Preliminary Development Plan. This green shall have a sidewalk of 4' along the perimeter and provide seating opportunities.

4. An open space of 100 feet in depth (excepting the portion adjacent to the jog in the property line) shall be provided along the railroad tracks. The 8 foot asphalt path shall be extended from Subarea A through this space, terminating at the south property line, intended to provide for future pedestrian access as Amlin redevelops.

E. **Materials:**

1. Permitted cladding materials will be brick, stone/synthetic stone, stucco/synthetic stucco, wood and fiber cement siding (*eg* Hardiplank). Other high quality materials may be approved in the Final Development Plan with examples of successful, high quality installations used with appropriate architectural detailing.

2. Secondary materials for trim and ornamentation include gypsum reinforced fiber cement trim, wood, vinyl, and decorative synthetic millwork for exterior applications. However, in no case may horizontal vinyl lap siding be used.

3. Permitted roofing materials include 30 year or better dimensional asphalt composite shingles, wood shingles and shakes, metal tiles or standing seam, slate and ceramic tile. "Engineered" wood or slate, as well as other high quality roofing materials, may be approved in the Final Development Plan with examples of successful, high quality installations.

F. **Architectural Requirements:**

1. General:

a. The building areas shown on the Preliminary Development Plan are conceptual and indicate the maximum building envelope for each home, exclusive of outdoor area. Final home footprints shall be provided at time of building permit.

b. The City of Dublin Residential Appearance Code shall not be applicable to units within this Subarea. Typical elevations shall be reviewed and approved at time of Final Development Plan by Planning Commission.

c. The architectural theme shall have a traditional character as reflected in the Examples of Architectural Character.

d. Privacy between units may be accomplished with building elements and/or privacy fencing. Privacy fencing is not intended to entirely enclose a patio area but is intended for privacy between patios.

e. The percentage of garage door to the overall front façade may be greater than 35% but may not exceed 40%. This requirement only applies to garages facing a public street.

f. Any fencing used shall be limited to 6' in height and shall be submitted for approval with the Final Development Plan.

g. Colors will be from a traditional color palette from a major paint manufacturer and will be a subset of the palette permitted for the single family homes in Subarea A.

h. In order to carry the neighborhood theme through both Subareas, all homes will have a mailbox of a single design and color.

2. Garages and Parking:

a. Garage doors shall be de-emphasized and shall not be treated as decorative elements.

b. Garage door color shall complement the primary color used on the home.

c. All homes will have two car attached garages.

d. The driveway shall be a minimum length of 19 feet exclusive of sidewalks.

e. Shared driveways shall be permitted.

3. Roofs: Roof slopes to be min. 6/12 except porch roofs which may be less.

4. Windows: Windows shall have grid patterns used on all four sides of the building.

5. Shutters:

a. Shutters shall be used judiciously but shall not be required on every window or on every elevation.

b. Shutters shall be equal to the size of full window. Shutter hardware shall not be required.

c. If shutters are used on the home, the shutter color shall match the front door color.

G. **Landscaping and Screening:** Landscaping and screening, including tree preservation, shall be in accordance with Dublin Code except as noted below.

1. Entry Features:

a. Entry features shall be provided at the condominium entry off of Ballantrae Woods Drive from Subarea A at Inchcape Lane and the Colling Drive entry opposite Montridge Drive. The Colling Drive entry feature shall be the primary entry feature for the condominium homes.

b. The entry feature design and open space frontage along Churchman Road shall be landscaped in a manner reflective of the character of the adjacent Ballantrae development. Large vertical stone slabs shall be incorporated at entry along Churchman Road at Colling Drive and the Inchcape Lane entry adjacent to Subarea A. The entries shall be augmented with trees and landscaping.

c. Within the open space along Churchman Road rock/rubble wall sections shall be installed and landscaping.

d. The Conceptual Landscape Plan provides entry feature locations and conceptual imagery.

e. The stormwater pond edge shall be enhanced with sections of rock outcroppings and landscaping beds.

f. Detailed landscape plans for the entry features and Churchman Road open space shall be provided at time of Final Development Plan.

2. Railroad Buffer

a. Within the 100' building setback along the west property line, a buffer shall be required to provide both a physical and visual barrier to the CSX railroad track.

b. This buffer shall be a minimum of 6' in height with a minimum opacity of 75% from proposed grade at installation.

c. A landscape plan for this buffer including any proposed fencing shall be submitted for approval with the Final Development Plan. Any fencing shall be limited to 6' in height.

3. Amlin Buffer

a. A 6' tall fence shall be provided along the south property line at the rear of the condominium homes abutting the Amlin lots/alley. Additional deciduous trees may be provided along this buffer along the south property line to provide an additional layer of screening between the condominium homes and the Amlin Lots.

H. **Tree replacement:**

1. A detailed tree replacement plan shall be provided at time of Final Development Plan.

2. With the exception of required street tree plantings, all other deciduous and evergreen tree plantings including the Churchman Road and Cosgray Road buffers, entry features and railroad buffer may be counted toward tree replacement.

I. **Miscellaneous:**

a. A 4 foot sidewalk shall be provided on one side of the private street as shown on the Site Plan – Sheet 4 and the Open Space and Pedestrian Connectivity Plan – Sheet 6.

b. Parallel parking shall be provided in areas along the private drives at a ratio of 1 space per 4 units. These spaces shall be 8 feet in width and 22 feet in depth, exclusive of the private street area. Final locations shall be provided on the Final Development Plan.

c. The condominium homes shall be served by private drives contained within a reserve. These drives shall be maintained by the subarea homeowners association and not the City of Dublin.

Subarea C

Subarea C is comprised of approximately 2.2 acres and shall be dedicated to the City of Dublin for the Churchman Road right of way.

III. PROJECT PHASING

It is anticipated that the project will begin concurrent with the construction of the first phase of Churchman Road by the Edwards Development. Phase 1 of Ballantrae Woods will start with overall mass excavation of the site, the extension of utilities, the stormwater management area, public roads, the single family lots in Subarea A and a portion of the site work/private drives necessary to sell condominium homes in Subarea B. The anticipated timing for the commencement of the project will be the fourth quarter of 2015. Depending on market conditions, the developer anticipates continuing with the balance of the condominium homes in the spring of 2016.

The ultimate timing and number of lots/units developed may be subject to change and will be determined at time of Final Development Plan.

Subject (Single Family) Lot	Influenced Lot
1	2, 3, 4, 5
2	4, 5, 12, 13
3	1, 4
4	1, 2, 3, 5
5	2, 4, 11, 12
6	5, 7, 8, 9, 10
7	6, 8, 9
8	6, 7, 9
9	5, 6, 7, 8, 10, 11
10	5, 6, 8, 9, 11, 12
11	2, 5, 9, 10, 12, 13
12	2, 5, 10, 11, 13, 14
13	2, 11, 12, 14, 15
14	12, 13, 15, 16
15	13, 14, 16, 17
16	14, 15, 17, 18
17	15, 16, 18, 19
18	16, 17, 19, 20
19	20, 21, 33, 34, 35
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21	19, 20, 22, 23, 36, 37, 38
22	20, 21, 23, 24, 37, 38, 39
23	21, 22, 24, 25, 38, 39
24	22, 23, 25, 26, 38, 39
25	23, 24, 26, 27, 39
26	24, 25, 27, 28, 39
27	25, 26, 28, 29, 39
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29	27, 28, 30, 31, 39, 40
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31	29, 30, 32, 40, 41
32	30, 31, 40, 41
33	19, 20, 34, 35
34	19, 20, 33, 35, 36
35	19, 20, 33, 34
36	19, 20, 21, 34, 35, 37, 38
37	20, 21, 22, 35, 36, 38, 39
38	21, 22, 23, 36, 37, 39, 40
39	23, 24, 25, 26, 27, 37, 38

Subject Lot	Influenced Lot
40	31, 32, 41, 42
41	32, 40, 42, 43
42	40, 41, 43, 44
43	41, 42, 44, 45
44	42, 43, 45, 46, 48
45	43, 44, 46, 47, 48
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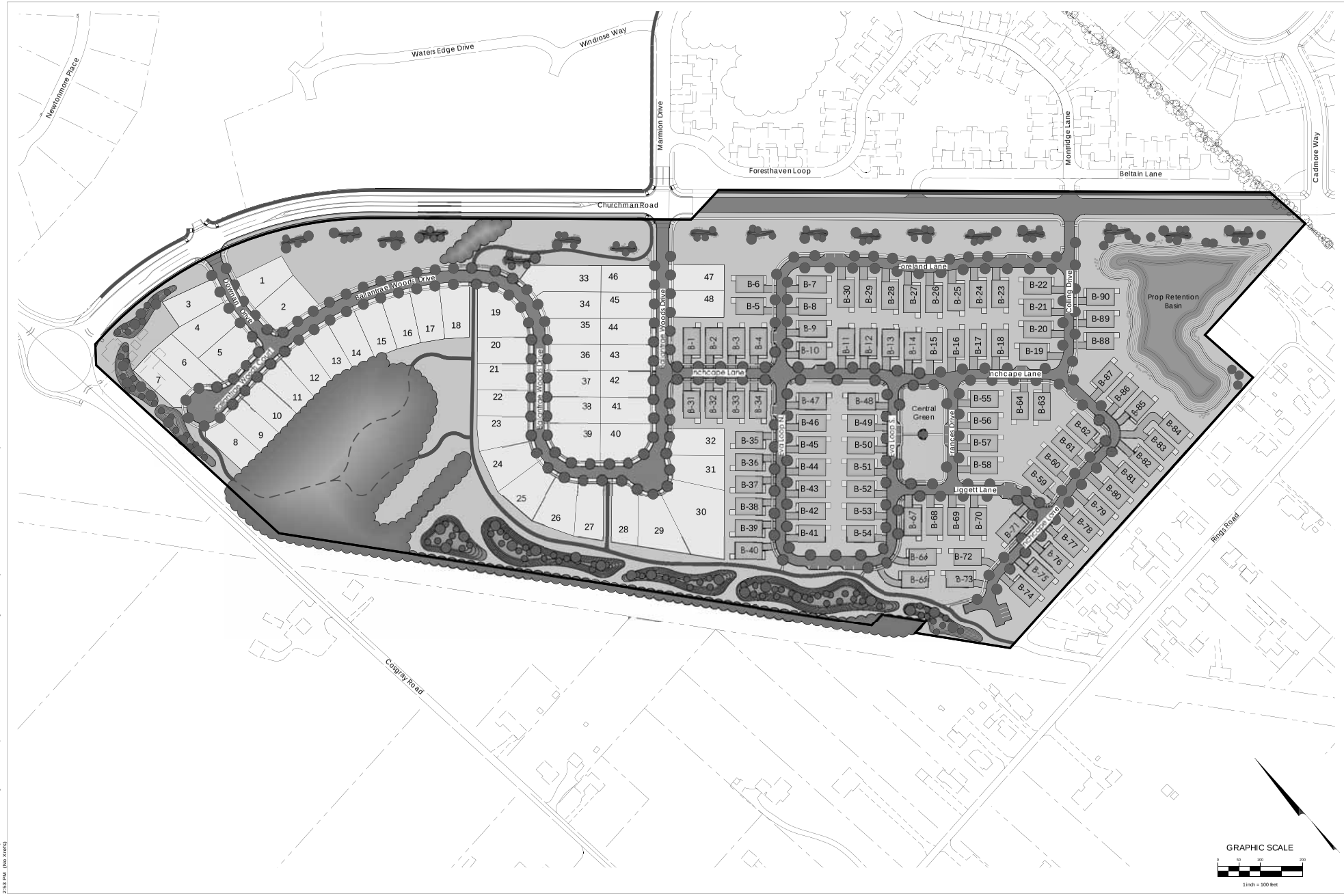
47	45, 46, 48
48	44, 45, 46, 47

SECTION III – Exhibits



REVISIONS

MARK	DATE	DESCRIPTION

SCHOTTENSTEIN HOMES

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
PRELIMINARY DEVELOPMENT PLAN
FOR
BALLANTRAE WOODS
ILLUSTRATIVE SITE PLAN

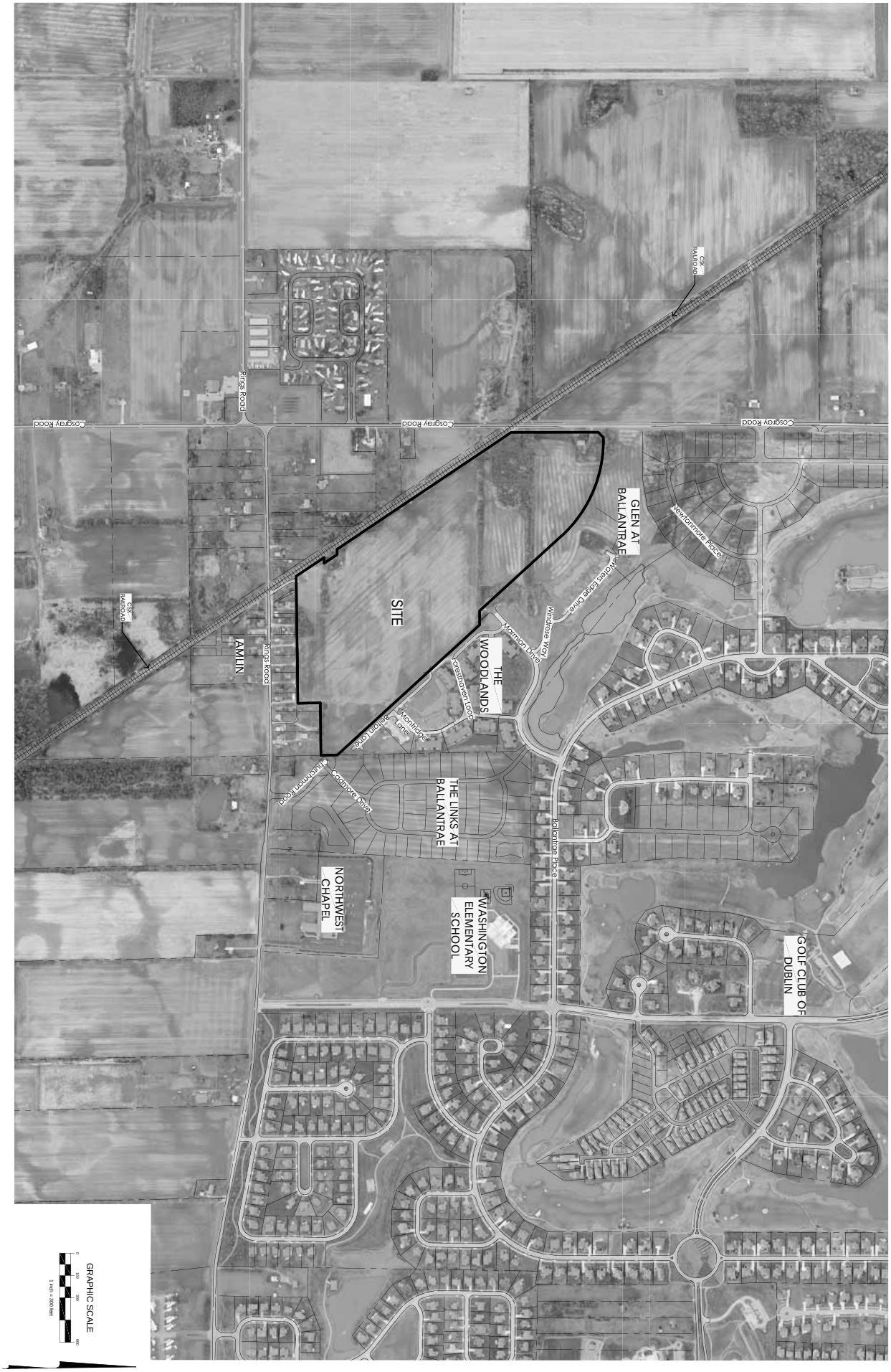
EMH&T
Civil Engineers & Land Planners
5500 New Albany Road
New Albany, OH 43054
Phone: (614) 775-4500
emht.com

DATE
JANUARY 7, 2015

SCALE
1" = 100'

JOB NO.
20140749

SHEET
1/1



SHEET	JOB NO.	SCALE	DATE		CITY OF DUBLIN, FRANKLIN COUNTY, OHIO PRELIMINARY DEVELOPMENT PLAN FOR BALLANTRAE WOODS REGIONAL CONTEXT MAP	SCHOTTENSTEIN HOMES	REVISIONS MARK / DATE / DESCRIPTION
1/16	20140749	1" = 300'	JANUARY 7, 2015	EMH&T Evans, Mechwart, Hambleton & Tilton, Inc. Engineers • Surveyors • Planners • Scientists 5500 New Albany Road, Columbus, OH 43054 Phone: 614.775.4500 Toll Free: 888.775.3648 emht.com			

REVISIONS

MARK	DATE	DESCRIPTION

SCHOTTENSTEIN HOMES

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
PRELIMINARY DEVELOPMENT PLAN
FOR
BALLANTRAE WOODS
VICINITY MAP

Land Planning • Landscape Architecture
Civil Engineering • Surveying
Transportation Planning
Urban Design

DATE
JANUARY 7, 2015

SCALE
1" = 200'

JOB NO.
20140749

SHEET
2/16

REVISIONS

MARK	DATE	DESCRIPTION

SCHOTTENSTEIN HOMES

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
PRELIMINARY DEVELOPMENT PLAN
FOR
BALLANTRAE WOODS
EXISTING CONDITIONS PLAN

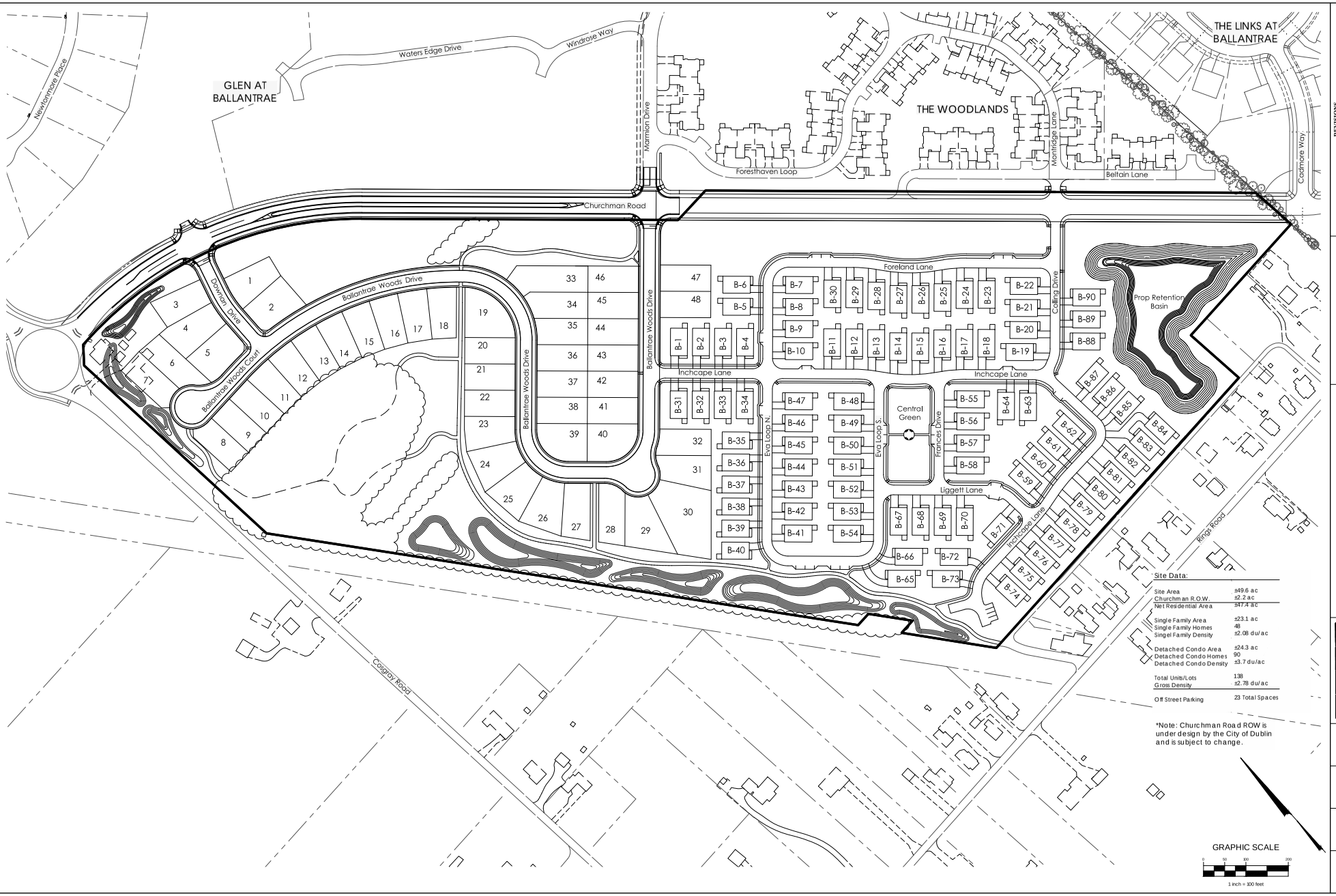
EMH&T
Civil Engineers • Surveyors • Planners • Scientists
5500 New Albany Road, Columbus, Ohio 43054
Phone: 614.775.4500 Toll Free: 866.775.5648
emht.com

DATE
JANUARY 7, 2015

SCALE
1" = 100'

JOB NO.
2014074.9

SHEET
3/16



REVISIONS

MARK	DATE	DESCRIPTION

SCHOTTENSTEIN HOMES

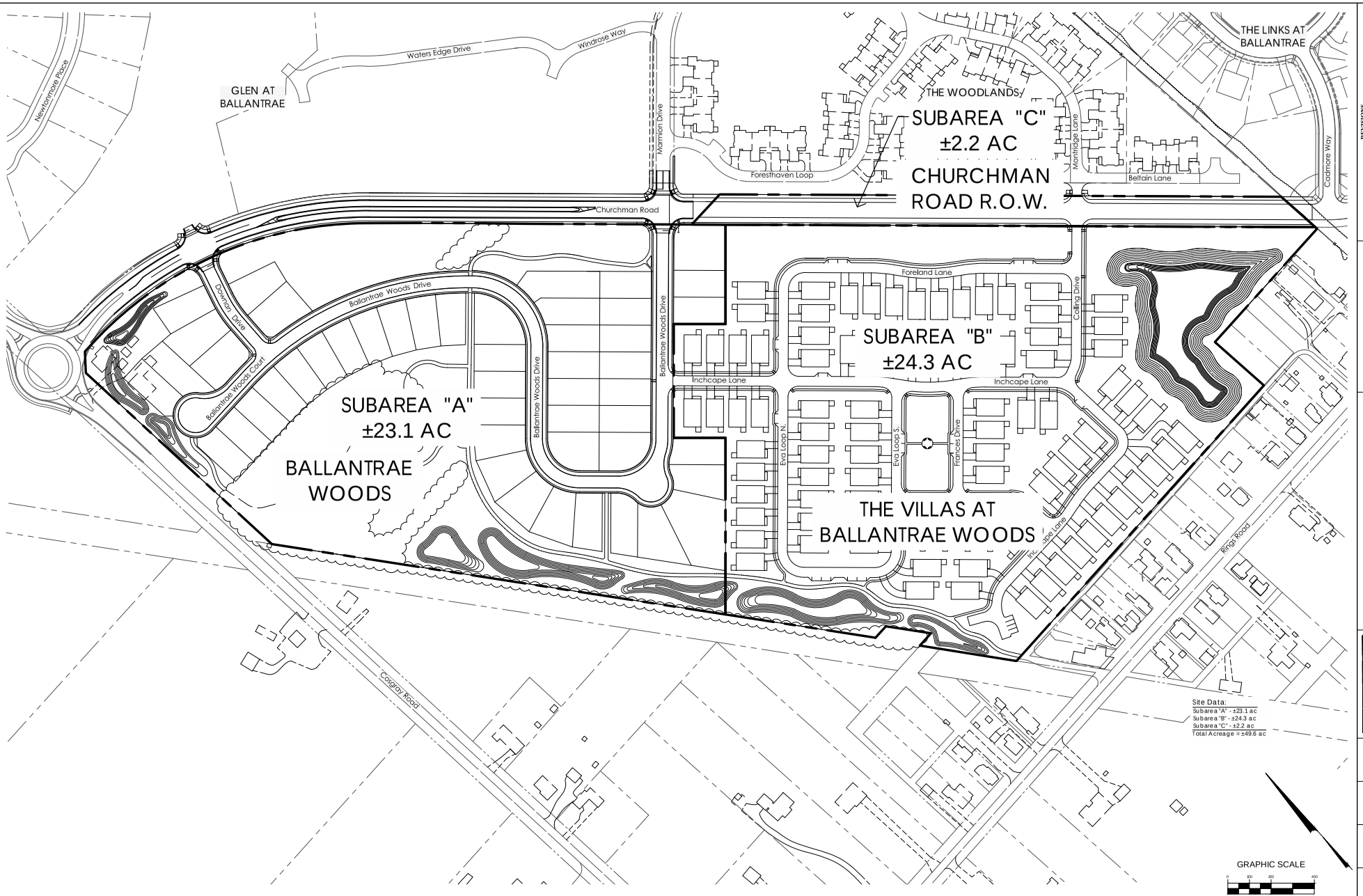
CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
PRELIMINARY DEVELOPMENT PLAN
FOR
BALLANTRAE WOODS
SITE PLAN

DATE
JANUARY 7, 2015

SCALE
1" = 100'

JOB NO.
20140749

SHEET
4/16



REVISIONS

MARK	DATE	DESCRIPTION

SCHOTTENSTEIN HOMES

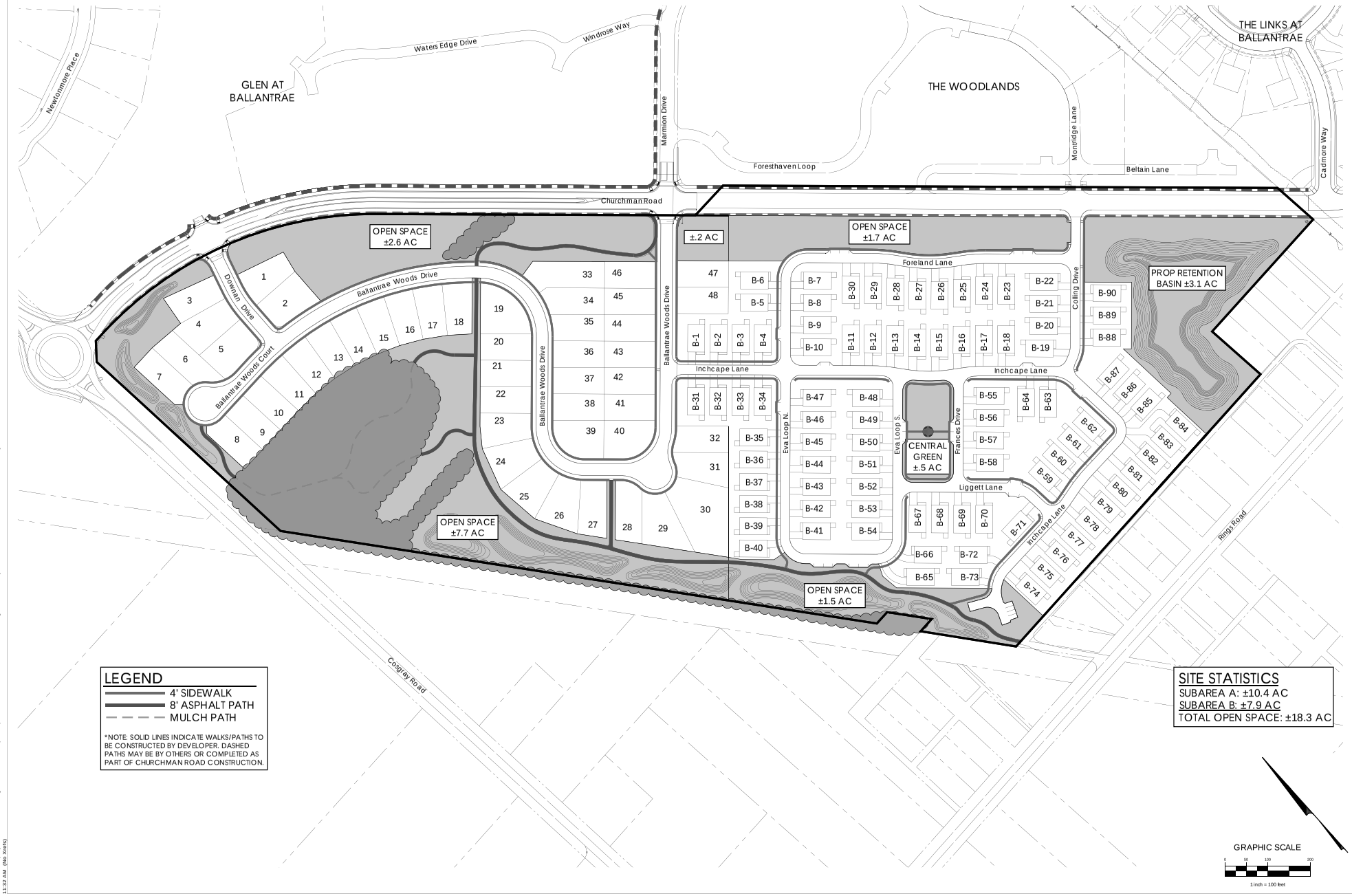
CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
PRELIMINARY DEVELOPMENT PLAN
FOR
BALLANTRAE WOODS
SUBAREA MAP

DATE
JANUARY 7, 2015

SCALE
1" = 200'

JOB NO.
20140749

SHEET
5/16



LEGEND

- 4' SIDEWALK
- 8' ASPHALT PATH
- MULCH PATH

*NOTE: SOLID LINES INDICATE WALKS/PATHS TO BE CONSTRUCTED BY DEVELOPER. DASHED PATHS MAY BE BY OTHERS OR COMPLETED AS PART OF CHURCHMAN ROAD CONSTRUCTION.

SITE STATISTICS

SUBAREA A: ±10.4 AC
SUBAREA B: ±7.9 AC
TOTAL OPEN SPACE: ±18.3 AC

GRAPHIC SCALE

0 50 100 200
1 inch = 100 feet

REVISIONS

MARK	DATE	DESCRIPTION

SCHOTTENSTEIN HOMES

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
PRELIMINARY DEVELOPMENT PLAN
FOR
BALLANTRAE WOODS
OPEN SPACE AND PEDESTRAIN CONNECTIVITY

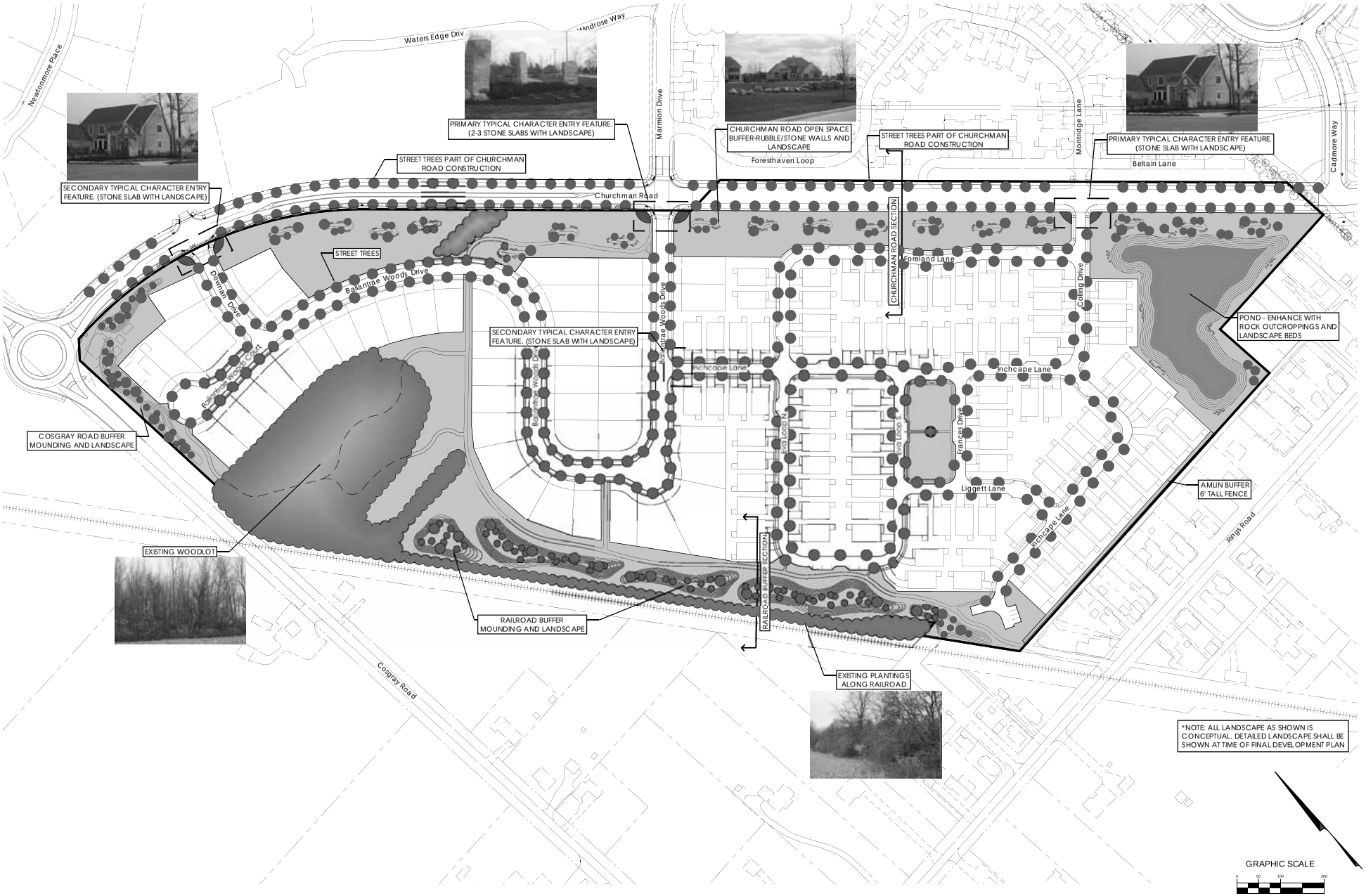
EMH&T
Civil Engineers & Land Planners
5500 New Albany Road
Columbus, Ohio 43054
Phone: 614.775.4500
emht.com

DATE
JANUARY 7, 2015

SCALE
1" = 100'

JOB NO.
20140749

SHEET
6/16



REVISIONS

MARK	DATE	DESCRIPTION

SCHOTTENSTEIN HOMES

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
PRELIMINARY DEVELOPMENT PLAN
FOR
BALLANTRAE WOODS
LANDSCAPE CONCEPT

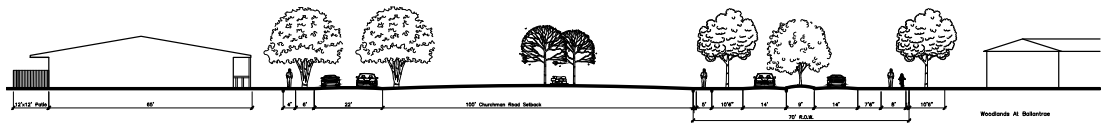
EMH&T
Civil Engineers & Land Planners
5500 New Albany Road
New Albany, OH 43054
Phone: 614.775.4500
Toll Free: 888.775.3648
emht.com

DATE
JANUARY 7, 2015

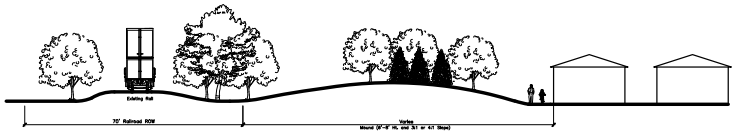
SCALE
1" = 100'

JOB NO.
20140749

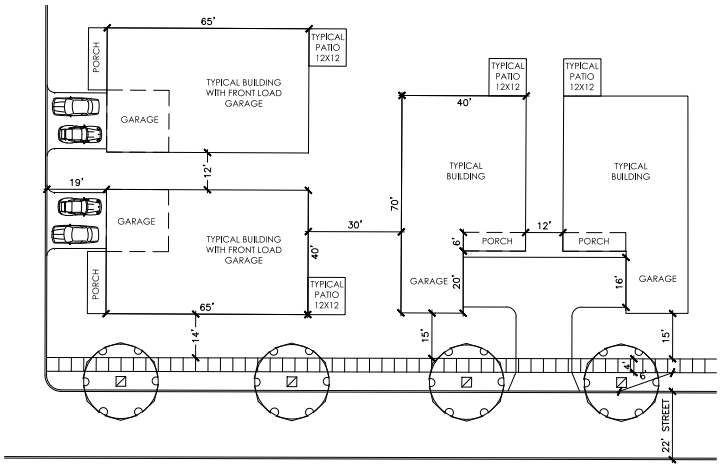
SHEET
7/16



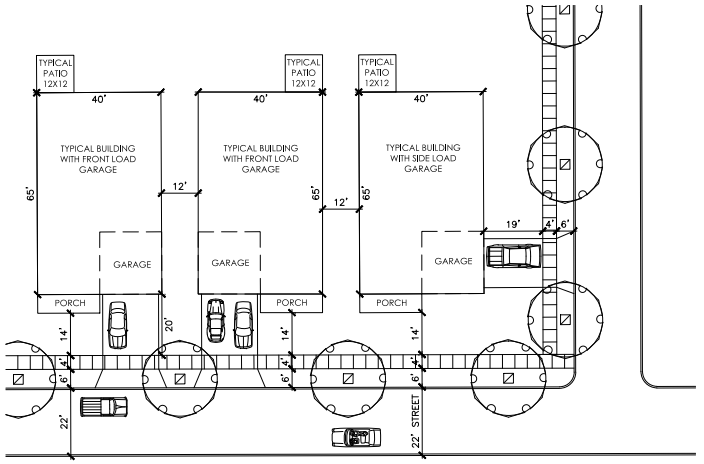
Churchman Road Section
Scale: 1"=20'



Railroad Buffer Section
Scale: 1"=20'



Typical Condo Layout - Courtyard Garage
Scale: 1"=20'



Typical Condo Layout - Front & Side Load Garage
Scale: 1"=20'

REVISIONS

MARK	DATE	DESCRIPTION

SCHOTTENSTEIN HOMES

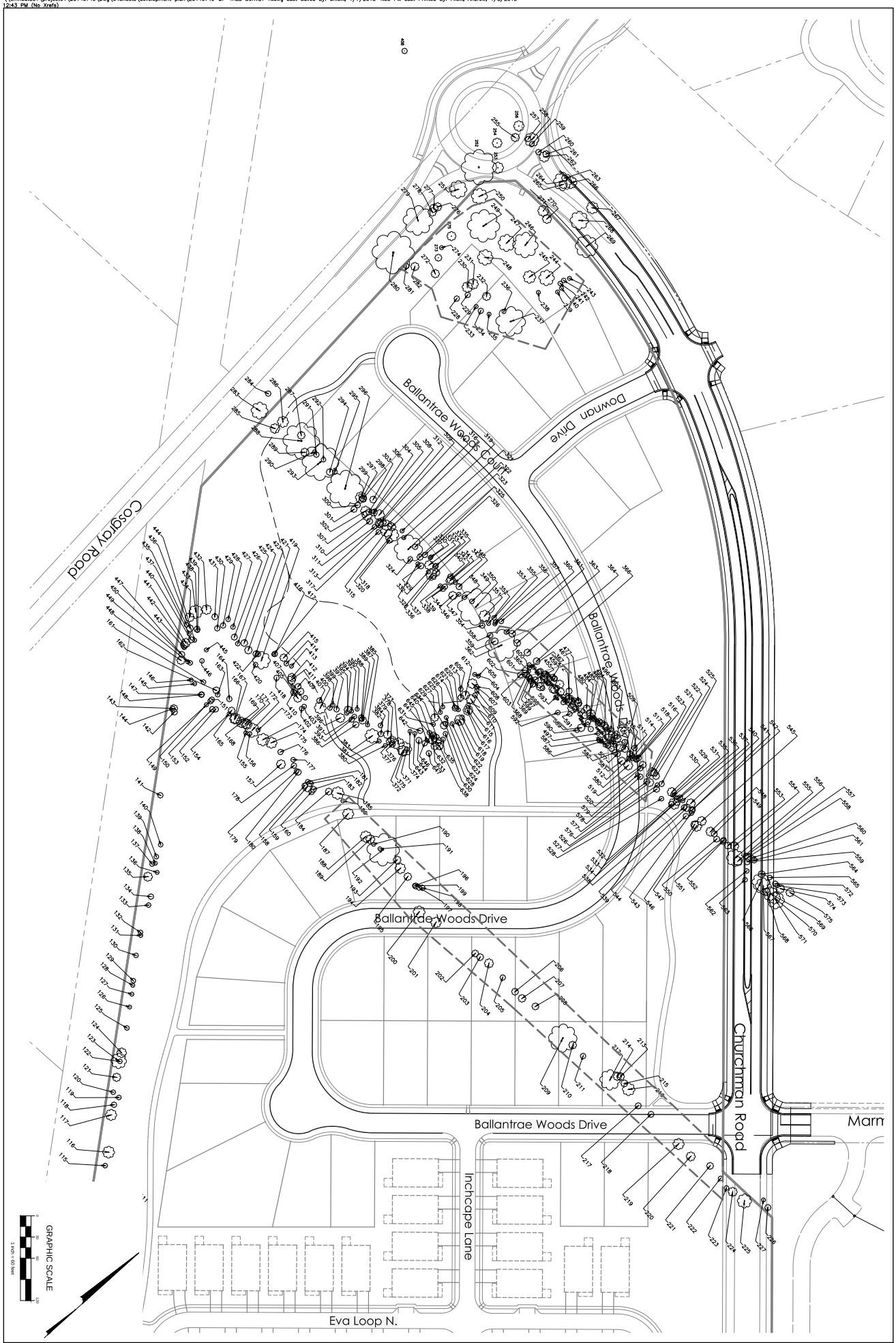
CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
PRELIMINARY DEVELOPMENT PLAN
FOR
BALLANTRAE WOODS
LANDSCAPE DETAILS

DATE
JANUARY 7, 2015

SCALE
1" = 100'

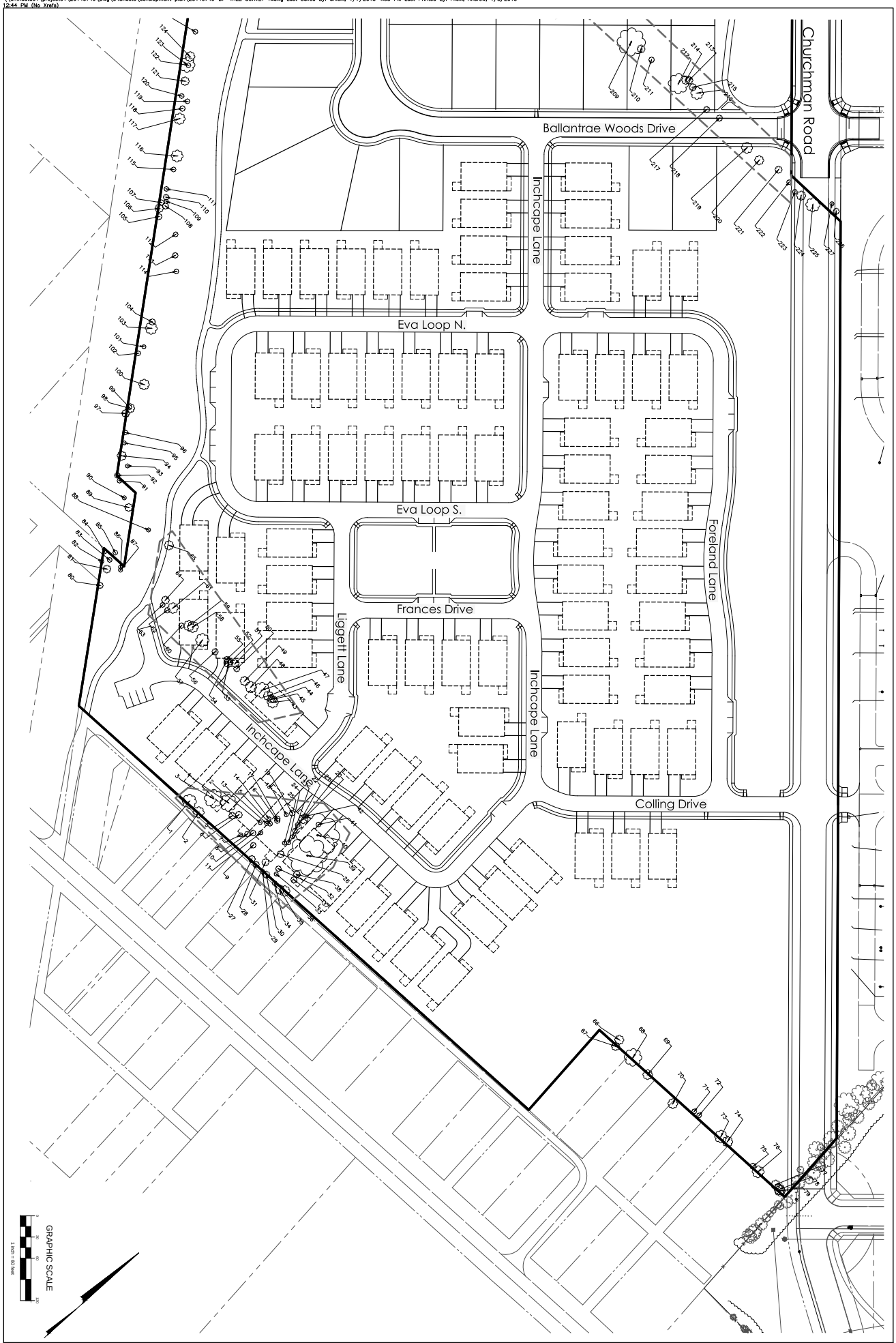
JOB NO.
201407.49

SHEET
8/16



SHEET 9 /16	JOB NO. 20140749	SCALE 1" = 60'	DATE JANUARY 7, 2015	EMHT	CITY OF DUBLIN, FRANKLIN COUNTY, OHIO PRELIMINARY DEVELOPMENT PLAN FOR **BALLANTRAE WOODS** **TREE SURVEY**	SCHOTTENSTEIN HOMES

REVISIONS		
MARK	DATE	DESCRIPTION



SHEET 10/16	JOB NO. 20140749	SCALE 1" = 60'	DATE JANUARY 7, 2015	EMHT	CITY OF DUBLIN, FRANKLIN COUNTY, OHIO PRELIMINARY DEVELOPMENT PLAN FOR **BALLANTRAE WOODS** **TREE SURVEY**	SCHOTTENSTEIN HOMES

REVISIONS		
MARK	DATE	DESCRIPTION

#	Common Name	Scientific Name	Size (dbh in)	Stems per tree	Condition	Indicator
1	Hackberry	Celtis occidentalis	20	1	Good	Deciduous
2	Sugar Maple	Acer saccharum	16	1	Good	Deciduous
3	Crabapple	Malus coronaria	26	1	Poor	Deciduous
4	Crabapple	Malus coronaria	24	1	Fair	Deciduous
5	Silver Maple	Acer saccharinum	10,17,15,17,15	5	Good	Deciduous
6	Crabapple	Malus coronaria	10	1	Dead	Deciduous
7	Hackberry	Celtis occidentalis	6	1	Good	Deciduous
8	Black Cherry	Prunus serotina	8	1	Good	Deciduous
9	Sugar Maple	Acer saccharum	8	1	Good	Deciduous
10	Black Cherry	Prunus serotina	8	1	Good	Deciduous
11	Sugar Maple	Acer saccharum	6,6,4	3	Good	Deciduous
12	Sugar Maple	Acer saccharum	6	1	Fair	Deciduous
13	Sugar Maple	Acer saccharum	6	1	Good	Deciduous
14	Black Cherry	Prunus serotina	6	1	Good	Deciduous
15	Sugar Maple	Acer saccharum	7	1	Good	Deciduous
16	Silver Maple	Acer saccharinum	8	1	Fair	Deciduous
17	Sugar Maple	Acer saccharum	8	1	Good	Deciduous
18	Black Walnut	Juglans nigra	6	1	Good	Deciduous
19	Hackberry	Celtis occidentalis	8	1	Good	Deciduous
20	Hackberry	Celtis occidentalis	13	1	Good	Deciduous
21	Black Cherry	Prunus serotina	7	1	Good	Deciduous
22	Sugar Maple	Acer saccharum	7	1	Good	Deciduous
23	Sugar Maple	Acer saccharum	6	1	Good	Deciduous
24	Black Walnut	Juglans nigra	8	1	Good	Deciduous
25	Black Walnut	Juglans nigra	6	1	Good	Deciduous
26	Osage-Orange	Maclura pomifera	10	1	Fair	Deciduous
27	Osage-Orange	Maclura pomifera	10,10	2	Fair	Deciduous
28	Osage-Orange	Maclura pomifera	9,8	2	Fair	Deciduous
29	Osage-Orange	Maclura pomifera	6	1	Good	Deciduous
30	Osage-Orange	Maclura pomifera	10,7	2	Fair	Deciduous
31	Osage-Orange	Maclura pomifera	10,9	2	Fair	Deciduous
32	Black Cherry	Prunus serotina	8	1	Poor	Deciduous
33	Sugar Maple	Acer saccharum	6	1	Good	Deciduous
34	Red Mulberry	Morus rubra	7	1	Poor	Deciduous
35	Sugar Maple	Acer saccharum	13,9	2	Fair	Deciduous
36	Red Mulberry	Morus rubra	15	1	Fair	Deciduous
37	Black Walnut	Juglans nigra	9	1	Good	Deciduous
38	Sugar Maple	Acer saccharum	10	1	Good	Deciduous
39	Silver Maple	Acer saccharinum	56	1	Good	Deciduous
40	Red Oak	Quercus rubra	62	1	Good	Deciduous
41	Black Cherry	Prunus serotina	7	1	Fair	Deciduous
42	Sugar Maple	Acer saccharum	7	1	Fair	Deciduous
43	Hackberry	Celtis occidentalis	10	1	Fair	Deciduous
44	Hackberry	Celtis occidentalis	10	1	Fair	Deciduous
45	Black Cherry	Prunus serotina	10	1	Dead	Deciduous
46	Red Mulberry	Morus rubra	14	1	Poor	Deciduous
47	Red Mulberry	Morus rubra	22	1	Poor	Deciduous
48	Red Mulberry	Morus rubra	16	1	Poor	Deciduous
49	Black Cherry	Prunus serotina	13	1	Dead	Deciduous
50	Red Mulberry	Morus rubra	5,5,7,7,8	5	Poor	Deciduous
51	Black Cherry	Prunus serotina	11	2	Dead	Deciduous
52	Red Mulberry	Morus rubra	6,6	2	Fair	Deciduous
53	Bradford Pear	Pyrus calleryana	13	1	Fair	Deciduous
54	Bradford Pear	Pyrus calleryana	6	1	Fair	Deciduous
55	Bradford Pear	Pyrus calleryana	8	1	Fair	Deciduous
56	Bradford Pear	Pyrus calleryana	6	1	Dead	Deciduous
57	Red Mulberry	Morus rubra	10,15,10	3	Poor	Deciduous
58	Black Cherry	Prunus serotina	16	1	Poor	Deciduous
59	Black Cherry	Prunus serotina	15	1	Poor	Deciduous
60	Red Mulberry	Morus rubra	8	1	Fair	Deciduous
61	Red Mulberry	Morus rubra	15	1	Fair	Deciduous
62	Red Mulberry	Morus rubra	8	1	Fair	Deciduous
63	Hackberry	Celtis occidentalis	7,6,6	3	Fair	Deciduous
64	Silver Maple	Acer saccharinum	11	1	Poor	Deciduous
65	Red Mulberry	Morus rubra	13	1	Good	Deciduous
66	Sugar Maple	Acer saccharum	13	1	Good	Deciduous
67	Sugar Maple	Acer saccharum	12,10,13,14	4	Poor	Deciduous
68	Red Mulberry	Morus rubra	25	1	Poor	Deciduous
69	Persimmon	Diospyros virginiana	14,11,12	3	Fair	Deciduous
70	Red Mulberry	Morus rubra	14,11,13,11,13	5	Fair	Deciduous
71	Red Mulberry	Morus rubra	7	1	Poor	Deciduous
72	Box Elder	Acer negundo	7	1	Fair	Deciduous
73	Sugar Maple	Acer saccharum	18,9	2	Fair	Deciduous
74	Douglas Fir	Pseudotsuga menziesii	15	1	Fair	Deciduous
75	Red Mulberry	Morus rubra	9,9	2	Fair	Deciduous
76	Hackberry	Celtis occidentalis	17	1	Fair	Deciduous
77	Hackberry	Celtis occidentalis	12	1	Dead	Deciduous
78	Hackberry	Celtis occidentalis	15	1	Good	Deciduous
79	Hackberry	Celtis occidentalis	15,7	2	Good	Deciduous
80	Black Locust	Robinia pseudoacacia	9	1	Good	Deciduous
81	Black Locust	Robinia pseudoacacia	11	1	Good	Deciduous
82	Black Locust	Robinia pseudoacacia	8	1	Good	Deciduous
83	Black Locust	Robinia pseudoacacia	7	1	Good	Deciduous
84	Hackberry	Celtis occidentalis	6	1	Good	Deciduous
85	Hackberry	Celtis occidentalis	7	1	Fair	Deciduous
86	Black Locust	Robinia pseudoacacia	8	1	Good	Deciduous
87	Black Locust	Robinia pseudoacacia	6	1	Good	Deciduous
88	Red Mulberry	Morus rubra	6	1	Good	Deciduous
89	Hackberry	Celtis occidentalis	11	1	Good	Deciduous
90	Black Walnut	Juglans nigra	6	1	Good	Deciduous
91	Black Walnut	Juglans nigra	7	1	Good	Deciduous
92	Red Mulberry	Morus rubra	8	1	Good	Deciduous
93	Black Walnut	Juglans nigra	6	1	Good	Deciduous
94	Hackberry	Celtis occidentalis	13	1	Good	Deciduous
95	Black Walnut	Juglans nigra	6	1	Good	Deciduous
96	Hackberry	Celtis occidentalis	7	1	Good	Deciduous
97	Red Mulberry	Morus rubra	11	1	Good	Deciduous
98	Red Mulberry	Morus rubra	13	1	Good	Deciduous
99	Red Mulberry	Morus rubra	7	1	Good	Deciduous
100	Red Mulberry	Morus rubra	15	1	Good	Deciduous

101	Black Cherry	Prunus serotina	6	1	Fair	Deciduous
102	Black Cherry	Prunus serotina	7	1	Fair	Deciduous
103	Silver Maple	Acer saccharinum	17	1	Fair	Deciduous
104	Black Cherry	Prunus serotina	9	1	Fair	Deciduous
105	Black Cherry	Prunus serotina	9	1	Poor	Deciduous
106	Black Cherry	Prunus serotina	12	1	Poor	Deciduous
107	Black Cherry	Prunus serotina	8	1	Poor	Deciduous
108	Red Mulberry	Morus rubra	9	1	Good	Deciduous
109	Red Mulberry	Morus rubra	6	1	Good	Deciduous
110	Red Mulberry	Morus rubra	8	1	Good	Deciduous
111	Black Cherry	Prunus serotina	7	1	Poor	Deciduous
112	Sugar Maple	Acer saccharum	7	1	Fair	Deciduous
113	Sugar Maple	Acer saccharum	8	1	Fair	Deciduous
114	Black Walnut	Juglans nigra	7	1	Fair	Deciduous
115	Black Cherry	Prunus serotina	7	1	Fair	Deciduous
116	Slippery Elm	Ulmus rubra	17	1	Fair	Deciduous
117	Eastern Cottonwood	Populus deltoides	16	1	Good	Deciduous
118	Red Mulberry	Morus rubra	8	1	Good	Deciduous
119	Sugar Maple	Acer saccharum	7	1	Good	Deciduous
120	Red Mulberry	Morus rubra	7	1	Good	Deciduous
121	Slippery Elm	Ulmus rubra	12	1	Good	Deciduous
122	Red Mulberry	Morus rubra	7,6	2	Good	Deciduous
123	Eastern Cottonwood	Populus deltoides	22	1	Good	Deciduous
124	Sugar Maple	Acer saccharum	14	1	Good	Deciduous
125	Slippery Elm	Ulmus rubra	7	1	Good	Deciduous
126	Sugar Maple	Acer saccharum	6	1	Good	Deciduous
127	Sugar Maple	Acer saccharum	6,6	2	Good	Deciduous
128	Sugar Maple	Acer saccharum	6,6,6	3	Good	Deciduous
129	Sugar Maple	Acer saccharum	7,6	2	Good	Deciduous
130	Sugar Maple	Acer saccharum	7	1	Good	Deciduous
131	Red Oak	Quercus rubra	6	1	Good	Deciduous
132	Red Oak	Quercus rubra	7	1	Good	Deciduous
133	Sugar Maple	Acer saccharum	7	1	Good	Deciduous
134	Sugar Maple	Acer saccharum	8,8	2	Good	Deciduous
135	Silver Maple	Acer saccharinum	13,15,15	3	Good	Deciduous
136	Silver Maple	Acer saccharinum	6	1	Good	Deciduous
137	Silver Maple	Acer saccharinum	7	1	Good	Deciduous
138	Silver Maple	Acer saccharinum	6	1	Good	Deciduous
139	Silver Maple	Acer saccharinum	7	1	Good	Deciduous
140	Silver Maple	Acer saccharinum	7	1	Good	Deciduous
141	Black Cherry	Prunus serotina	8	1	Fair	Deciduous
142	Eastern Cottonwood	Populus deltoides	9	1	Good	Deciduous
143	Silver Maple	Acer saccharinum	11	1	Good	Deciduous
144	Red Mulberry	Morus rubra	7	1	Good	Deciduous
145	Sugar Maple	Acer saccharum	6,6	2	Good	Deciduous
146	Sugar Maple	Acer saccharum	6	1	Good	Deciduous
147	Eastern Cottonwood	Populus deltoides	8	1	Good	Deciduous
148	Sugar Maple	Acer saccharum	8	1	Good	Deciduous
149	Sugar Maple	Acer saccharum	8	1	Good	Deciduous
150	Sugar Maple	Acer saccharum	6	1	Good	Deciduous
151	Eastern Cottonwood	Populus deltoides	8	1	Good	Deciduous
152	Eastern Cottonwood	Populus deltoides	8,7	2	Good	Deciduous
153	Sugar Maple	Acer saccharum	8	1	Good	Deciduous
154	Sugar Maple	Acer saccharum	6	1	Good	Deciduous
155	Sugar Maple	Acer saccharum	6	1	Good	Deciduous
156	Sugar Maple	Acer saccharum	6	1	Good	Deciduous
157	Red Mulberry	Morus rubra	13	1	Good	Deciduous
158	Crabapple	Malus coronaria	8,8	2	Fair	Deciduous
159	Red Mulberry	Morus rubra	14	1	Fair	Deciduous
160	Crabapple	Malus coronaria	8	1	Fair	Deciduous
161	Black Cherry	Prunus serotina	7	1	Poor	Deciduous
162	Red Mulberry	Morus rubra	10	1	Fair	Deciduous
163	Red Mulberry	Morus rubra	7	1	Fair	Deciduous
164	Sugar Maple	Acer saccharum	8	1	Fair	Deciduous
165	Sugar Maple	Acer saccharum	10	1	Good	Deciduous
166	Mockernut Hickory	Carya tomentosa	14	1	Good	Deciduous
167	Osage-Orange	Maclura pomifera	15	1	Fair	Deciduous
168	White Ash	Fraxinus americana	15	1	Poor	Deciduous
169	Sugar Maple	Acer saccharum	6	1	Fair	Deciduous
170	White Ash	Fraxinus americana	15	1	Poor	Deciduous
171	White Ash	Fraxinus americana	14	1	Poor	Deciduous
172	Eastern Cottonwood	Populus deltoides	20	1	Good	Deciduous
173	Sugar Maple	Acer saccharum	6	1	Good	Deciduous
174	White Ash	Fraxinus americana	18	1	Poor	Deciduous
175	White Ash	Fraxinus americana	16	1	Poor	Deciduous
176	Red Mulberry	Morus rubra	8	1	Good	Deciduous
177	Red Mulberry	Morus rubra	7	1	Good	Deciduous
178	Eastern Cottonwood	Populus deltoides	8	1	Good	Deciduous
179	Black Cherry	Prunus serotina	7	1	Fair	Deciduous
180	Black Cherry	Prunus serotina	9	1	Fair	Deciduous
181	Crabapple	Malus coronaria	7,7,7,7	4	Fair	Deciduous
182	Red Mulberry	Morus rubra	9,7	2	Fair	Deciduous
183	Crabapple	Malus coronaria	9,7,7	3	Poor	Deciduous
184	Silver Maple	Acer saccharinum	10,7,7,7	4	Fair	Deciduous
185	Eastern Cottonwood	Populus deltoides	18	1	Fair	Deciduous
186	Red Oak	Quercus rubra	6	1	Good	Deciduous
187	White Ash	Fraxinus americana	16	1	Good	Deciduous
188	White Ash	Fraxinus americana	16	1	Dead	Deciduous
189	Crabapple	Malus coronaria	13	1	Poor	Deciduous
190	Black Cherry	Prunus serotina	6	1	Poor	Deciduous
191	Red Oak	Quercus rubra	6	1	Good	Deciduous
192	Red Oak	Quercus rubra	46	1	Good	Deciduous
193	White Ash	Fraxinus americana	21,15	2	Poor	Deciduous
194	Black Cherry	Prunus serotina	14	1	Dead	Deciduous
195	Red Mulberry	Morus rubra	11,16,15	3	Fair	Deciduous
196	Black Cherry	Prunus serotina	6	1	Dead	Deciduous
197	Black Cherry	Prunus serotina	9	1	Dead	Deciduous
198	Black Cherry	Prunus serotina	8	1	Dead	Deciduous
199	Red Mulberry	Morus rubra	9	1	Dead	Deciduous
200	Red Mulberry	Morus rubra	17	1	Fair	Deciduous

201	Red Maple	Acer rubrum	15	1	Poor	Deciduous
202	Red Maple	Acer rubrum	10	1	Poor	Deciduous
203	Red Maple	Acer rubrum	10	1	Dead	Deciduous
204	Red Maple	Acer rubrum	13	1	Dead	Deciduous
205	Red Maple	Acer rubrum	8	1	Dead	Deciduous
206	Red Maple	Acer rubrum	10	1	Dead	Deciduous
207	Red Maple	Acer rubrum	11	1	Dead	Deciduous
208	Red Maple	Acer rubrum	10,6	2	Dead	Deciduous
209	Red Mulberry	Morus rubra	40	1	Fair	Deciduous
210	Red Maple	Acer rubrum	11	1	Fair	Deciduous
211	White Ash	Fraxinus americana	8	1	Fair	Deciduous
212	Washington Hawthorn	Crataegus phaenopyrum	29	1	Good	Deciduous
213	Washington Hawthorn	Crataegus phaenopyrum	11	1	Fair	Deciduous
214	Black Cherry	Prunus serotina	12	1	Dead	Deciduous
215	Black Cherry	Prunus serotina	10	1	Poor	Deciduous
216	Red Mulberry	Morus rubra	18	1	Fair	Deciduous
217	Red Mulberry	Morus rubra	9	1	Dead	Deciduous
218	Red Mulberry	Morus rubra	6	1	Dead	Deciduous
219	Red Maple	Acer rubrum	26	1	Good	Deciduous
220	Red Oak	Quercus rubra	13	1	Good	Deciduous
221	Red Oak	Quercus rubra	10,9,8	3	Good	Deciduous
222	Red Oak	Quercus rubra	7	1	Good	Deciduous
223	Red Maple	Acer rubrum	7	1	Dead	Deciduous
224	Red Maple	Acer rubrum	13	1	Dead	Deciduous
225	Red Mulberry	Morus rubra	20	1	Fair	Deciduous
226	Black Walnut	Juglans nigra	9	1	Fair	Deciduous
227	Black Walnut	Juglans nigra	6	1	Fair	Deciduous
228	Red Mulberry	Morus rubra	8	1	Fair	Deciduous
229	Red Mulberry	Morus rubra	6,6	2	Poor	Deciduous
230	American Elm	Ulmus americana	15,12,8	3	Fair	Deciduous
231	Hackberry	Celtis occidentalis	15,12,8	3	Fair	Deciduous
232	Silver Maple	Acer saccharinum	12,13,12,9	4	Fair	Deciduous
233	Black Walnut	Juglans nigra	6,6	2	Fair	Deciduous
234	Black Walnut	Juglans nigra	8	1	Good	Deciduous
235	Black Walnut	Juglans nigra	6	1	Good	Deciduous
236	Black Walnut	Juglans nigra	6	1	Good	Deciduous
237	Slippery Elm	Ulmus rubra	42	1	Good	Deciduous
238	Black Walnut	Juglans nigra	6	1	Good	Deciduous
239	Black Walnut	Juglans nigra	6	1	Good	Deciduous
240	Black Walnut	Juglans nigra	6	1	Good	Deciduous
241	Black Walnut	Juglans nigra	7	1	Good	Deciduous
242	Black Walnut	Juglans nigra	7	1	Good	Deciduous
243	Black Walnut	Juglans nigra	6	1	Good	Deciduous
244	Eastern Cottonwood	Populus deltoides	22	1	Good	Deciduous
245	Black Walnut	Juglans nigra	28	1	Good	Deciduous
246	Eastern Cottonwood	Populus deltoides	36	1	Good	Deciduous
247	Black Walnut	Juglans nigra	24	1	Good	Deciduous
248	Black Walnut	Juglans nigra	22	1	Good	Deciduous
249	Eastern Cottonwood	Populus deltoides	46	1	Good	Deciduous
250	Sugar Maple	Acer saccharum	23	1	Good	Deciduous
251	Sugar Maple	Acer saccharum	25	1	Poor	Deciduous
252	Eastern Cottonwood	Populus deltoides	50	1	Fair	Deciduous
253	Black Cherry	Prunus serotina	16	1	Fair	Deciduous
254	Douglas fir	Pseudotsuga menziesii	14	1	Fair	Coniferous
255	Red Mulberry	Morus rubra	12,10	2	Fair	Deciduous
256	Black Walnut	Juglans nigra	15	1	Fair	Deciduous
257	Red Mulberry	Morus rubra	8,8,8,8	4	Fair	Deciduous
258	Slippery Elm	Ulmus rubra	20	1	Fair	Deciduous
259	Slippery Elm	Ulmus rubra	7	1	Fair	Deciduous
260	Slippery Elm	Ulmus rubra	8,7,7	3	Fair	Deciduous
261	Black Walnut	Juglans nigra	10	1	Good	Deciduous
262	Red Mulberry	Morus rubra	11	1	Dead	Deciduous
263	Red Mulberry	Morus rubra	9	1	Fair	Deciduous
264	Black Walnut	Juglans nigra	26	1	Good	Deciduous
265	Red Mulberry	Morus rubra	12,11,9	3	Good	Deciduous
266	Red Mulberry	Morus rubra	17	1	Dead	Deciduous
267	Silver Maple	Acer saccharinum	17,17,17	3	Fair	Deciduous
268	Silver Maple	Acer saccharinum	26	1	Fair	Deciduous
269	Slippery Elm	Ulmus rubra	12	1	Fair	Deciduous
270	Slippery Elm	Ulmus rubra	13,15	2	Fair	Deciduous
271	Slippery Elm	Ulmus rubra	16	1	Good	Deciduous
272	Red Mulberry	Morus rubra	12,12,13	3	Good	Deciduous
273	Douglas fir	Pseudotsuga menziesii	10,6	2	Good	Coniferous
274	Black Walnut	Juglans nigra	6	1	Good	Deciduous
275	Douglas fir	Pseudotsuga menziesii	13	1	Good	Coniferous
276	Slippery Elm	Ulmus rubra	12	1	Good	Deciduous
277	Slippery Elm	Ulmus rubra	12,6	2	Fair	Deciduous
278	Red Mulberry	Morus rubra	12	1	Fair	Deciduous
279	Black Walnut	Juglans nigra	42	1	Fair	Deciduous
280	Eastern Cottonwood	Populus deltoides	60	1	Fair	Deciduous
281	Eastern Cottonwood	Populus deltoides	8,8,8	3	Fair	Deciduous
282	Sugar Maple	Acer saccharum	12	1	Fair	Deciduous
283	Sugar Maple	Acer saccharum	24	1	Dead	Deciduous
284	Black Walnut	Juglans nigra	8	1	Fair	Deciduous
285	Black Walnut	Juglans nigra	14,10,9,9	4	Fair	Deciduous
286	Black Walnut	Juglans nigra	16	1	Fair	Deciduous
287	Hackberry	Celtis occidentalis	11	1	Fair	Deciduous
288	Eastern Cottonwood	Populus deltoides	52	1	Fair	Deciduous
289	Hackberry	Celtis occidentalis	12	1	Fair	Deciduous
290	Hackberry	Celtis occidentalis	6	1	Fair	Deciduous
291	White Ash	Fraxinus americana	8	1	Poor	Deciduous
292	White Ash	Fraxinus americana	7	1	Poor	Deciduous
293	Silver Maple	Acer saccharinum	52	1	Fair	Deciduous
294	White Ash	Fraxinus americana	10	1	Poor	Deciduous
295	Hackberry	Celtis occidentalis	7	1	Fair	Deciduous
296	Silver Maple	Acer saccharinum	52	1	Fair	Deciduous
297	Silver Maple	Acer saccharinum	8	1	Fair	Deciduous
298	Silver Maple	Acer saccharinum	10	1	Fair	Deciduous
299	Silver Maple	Acer saccharinum	16 [?]	1	Fair	Deciduous
300	Silver Maple	Acer saccharinum	8	1	Fair	Deciduous

301	Silver Maple	Acer saccharinum	9	1	Fair	Deciduous
302	Silver Maple	Acer saccharinum	14	1	Fair	Deciduous
303	Silver Maple	Acer saccharinum	10	1	Fair	Deciduous
304	Silver Maple	Acer saccharinum	6	1	Dead	Deciduous
305	Silver Maple	Acer saccharinum	10	1	Fair	Deciduous
306	Silver Maple	Acer saccharinum	9	1	Fair	Deciduous
307	Silver Maple	Acer saccharinum	14,6	2	Fair	Deciduous
308	Silver Maple	Acer saccharinum	15	1	Fair	Deciduous
309	White Ash	Fraxinus americana	13	1	Dead	Deciduous
310	White Ash	Fraxinus americana	6	1	Dead	Deciduous
311	White Ash	Fraxinus americana	7	1	Dead	Deciduous
312	Silver Maple	Acer saccharinum	13,8	2	Fair	Deciduous
313	Silver Maple	Acer saccharinum	11	1	Fair	Deciduous
314	Silver Maple	Acer saccharinum	15	1	Fair	Deciduous
315	Silver Maple	Acer saccharinum	17	1	Fair	Deciduous
316	Hackberry	Celtis occidentalis	12	1	Fair	Deciduous
317	Silver Maple	Acer saccharinum	7,7,8	3	Fair	Deciduous
318	Silver Maple	Acer saccharinum	6	1	Dead	Deciduous
319	Silver Maple	Acer saccharinum	6	1	Dead	Deciduous
320	Silver Maple	Acer saccharinum	20,17,7	3	Fair	Deciduous
321	Silver Maple	Acer saccharinum	6	1	Dead	Deciduous
322	Silver Maple	Acer saccharinum	40	1	Fair	Deciduous
323	White Ash	Fraxinus americana	9	1	Dead	Deciduous
324	White Ash	Fraxinus americana	7	1	Dead	Deciduous
325	White Ash	Fraxinus americana	9	1	Dead	Deciduous
326	White Ash	Fraxinus americana	6	1	Dead	Deciduous
327	White Ash	Fraxinus americana	6	1	Dead	Deciduous
328	White Ash	Fraxinus americana	4	1	Dead	Deciduous
329	White Ash	Fraxinus americana	5	1	Dead	Deciduous
330	White Ash	Fraxinus americana	6	1	Dead	Deciduous
331	Silver Maple	Acer saccharinum	13,13	2	Fair	Deciduous
332	White Ash	Fraxinus americana	6	1	Dead	Deciduous
333	White Ash	Fraxinus americana	8	1	Dead	Deciduous
334	White Ash	Fraxinus americana	6	1	Dead	Deciduous
335	Silver Maple	Acer saccharinum	11	1	Fair	Deciduous
336	Silver Maple	Acer saccharinum	16	1	Fair	Deciduous
337	White Ash	Fraxinus americana	8	1	Dead	Deciduous
338	White Ash	Fraxinus americana	6	1	Dead	Deciduous
339	White Ash	Fraxinus americana	8	1	Dead	Deciduous
340	White Ash	Fraxinus americana	7	1	Dead	Deciduous
341	White Ash	Fraxinus americana	12,11	1	Dead	Deciduous
342	Silver Maple	Acer saccharinum	12,15	1	Fair	Deciduous
343	White Ash	Fraxinus americana	6,6	2	Fair	Deciduous
344	Silver Maple	Acer saccharinum	8	1	Fair	Deciduous
345	Black Cherry	Prunus serotina	8	1	Dead	Deciduous
346	Red Mulberry	Morus rubra	12	1	Dead	Deciduous
347	White Ash	Fraxinus americana	6	1	Dead	Deciduous
348	White Ash	Fraxinus americana	6	1	Dead	Deciduous
349	Red Mulberry	Morus rubra	7,7,8	3	Poor	Deciduous
350	Eastern Cottonwood	Populus deltoides	52	1	Fair	Deciduous
351	Hackberry	Celtis occidentalis	16,7	2	Fair	Deciduous
352	White Ash	Fraxinus americana	6	1	Dead	Deciduous
353	White Ash	Fraxinus americana	7	1	Dead	Deciduous
354	White Ash	Fraxinus americana	6	1	Dead	Deciduous
355	White Ash	Fraxinus americana	7	1	Dead	Deciduous
356	White Ash	Fraxinus americana	6	1	Dead	Deciduous
357	Red Mulberry	Morus rubra	7	1	Fair	Deciduous
358	Red Mulberry	Morus rubra	6,10	1	Fair	Deciduous
359	Red Mulberry	Morus rubra	10	1	Fair	Deciduous
360	Hackberry	Celtis occidentalis	7	1	Fair	Deciduous
361	Hackberry	Celtis occidentalis	10	1	Fair	Deciduous
362	Eastern Cottonwood	Populus deltoides	45,45	1	Fair	Deciduous
363	Hackberry	Celtis occidentalis	10	1	Fair	Deciduous
364	Black Cherry	Prunus serotina	10,6	2	Poor	Deciduous
365	White Ash	Fraxinus americana	6	1	Dead	Deciduous
366	White Ash	Fraxinus americana	10,6	2	Dead	Deciduous
367	White Ash	Fraxinus americana	6,6	2	Dead	Deciduous
368	White Ash	Fraxinus americana	6,6,6,10	4	Dead	Deciduous
369	White Ash	Fraxinus americana	6,7	2	Dead	Deciduous
370	White Ash	Fraxinus americana	6,6	2	Dead	Deciduous
371	White Ash	Fraxinus americana	8	1	Dead	Deciduous
372	White Ash	Fraxinus americana	8	1	Dead	Deciduous
373	White Ash	Fraxinus americana	10	1	Dead	Deciduous
374	White Ash	Fraxinus americana	10	1	Dead	Deciduous
375	White Ash	Fraxinus americana	11	1	Dead	Deciduous
376	White Ash	Fraxinus americana	7	1	Dead	Deciduous
377	White Ash	Fraxinus americana	7	1	Dead	Deciduous
378	White Ash	Fraxinus americana	6	1	Dead	Deciduous
379	White Ash	Fraxinus americana	6	1	Dead	Deciduous
380	White Ash	Fraxinus americana	6	1	Dead	Deciduous
381	White Ash	Fraxinus americana	12	1	Dead	Deciduous
382	White Ash	Fraxinus americana	7	1	Dead	Deciduous
383	White Ash	Fraxinus americana	13	1	Dead	Deciduous
384	White Ash	Fraxinus americana	12	1	Dead	Deciduous
385	White Ash	Fraxinus americana	11	1	Dead	Deciduous
386	White Ash	Fraxinus americana	9	1	Dead	Deciduous
387	White Ash	Fraxinus americana	7	1	Dead	Deciduous
388	White Ash	Fraxinus americana	7	1	Dead	Deciduous
389	White Ash	Fraxinus americana	10	1	Dead	Deciduous
390	White Ash	Fraxinus americana	7	1	Dead	Deciduous
391	White Ash	Fraxinus americana	12	1	Dead	Deciduous
392	White Ash	Fraxinus americana	7	1	Dead	Deciduous
393	White Ash	Fraxinus americana	7	1	Dead	Deciduous
394	White Ash	Fraxinus americana	9	1	Dead	Deciduous
395	White Ash	Fraxinus americana	14	1	Dead	Deciduous
396	White Ash	Fraxinus americana	8	1	Dead	Deciduous
397	White Ash	Fraxinus americana	11	1	Dead	Deciduous
398	White Ash	Fraxinus americana	6	1	Dead	Deciduous
399	White Ash	Fraxinus americana	10	1	Dead	Deciduous
400	White Ash	Fraxinus americana	6	1	Dead	Deciduous

Legend:

- Trees to Remain
- Trees to be Removed
- ~~DEAD~~ Dead Trees
- Tree Removed for Churchman/Cosgray (Not part of Ballantrae Woods Tree Replacement)

REVISIONS

MARK	DATE	DESCRIPTION

SCHOTTENSTEIN HOMES

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
PRELIMINARY DEVELOPMENT PLAN
FOR
BALLANTRAE WOODS
TREE SURVEY NOTES

EMHT
Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers • Surveyors • Planners • Scientists
5500 New Albany Road, Columbus, OH 43054
Phone: 614.775.4500 Toll Free: 888.775.3648
emht.com

DATE JANUARY 7, 2015
SCALE 1" = 100'
JOB NO. 20140749
SHEET 11/16

401	White Ash	Fraxinus americana	7	1	Dead	Deciduous
402	White Ash	Fraxinus americana	9	1	Dead	Deciduous
403	White Ash	Fraxinus americana	13	1	Dead	Deciduous
404	White Ash	Fraxinus americana	10	1	Dead	Deciduous
405	White Ash	Fraxinus americana	6	1	Dead	Deciduous
406	White Ash	Fraxinus americana	7	1	Dead	Deciduous
407	White Ash	Fraxinus americana	8	1	Dead	Deciduous
408	White Ash	Fraxinus americana	7	1	Dead	Deciduous
409	White Ash	Fraxinus americana	7	1	Dead	Deciduous
410	White Ash	Fraxinus americana	10	1	Dead	Deciduous
411	White Ash	Fraxinus americana	10	1	Dead	Deciduous
412	White Ash	Fraxinus americana	6	1	Dead	Deciduous
413	White Ash	Fraxinus americana	9	1	Dead	Deciduous
414	White Ash	Fraxinus americana	9	1	Dead	Deciduous
415	White Ash	Fraxinus americana	6	1	Dead	Deciduous
416	Black Cherry	Prunus serotina	6	1	Poor	Deciduous
417	White Ash	Fraxinus americana	9	1	Dead	Deciduous
418	White Ash	Fraxinus americana	10	1	Dead	Deciduous
419	White Ash	Fraxinus americana	9	1	Dead	Deciduous
420	White Ash	Fraxinus americana	12	1	Dead	Deciduous
421	White Ash	Fraxinus americana	8	1	Dead	Deciduous
422	White Ash	Fraxinus americana	11	1	Dead	Deciduous
423	White Ash	Fraxinus americana	6	1	Dead	Deciduous
424	White Ash	Fraxinus americana	6	1	Dead	Deciduous
425	White Ash	Fraxinus americana	12	1	Dead	Deciduous
426	White Ash	Fraxinus americana	8	1	Dead	Deciduous
427	White Ash	Fraxinus americana	13	1	Dead	Deciduous
428	White Ash	Fraxinus americana	10	1	Dead	Deciduous
429	White Ash	Fraxinus americana	9	1	Dead	Deciduous
430	Sugar Maple	Acer saccharum	8	1	Good	Deciduous
431	White Ash	Fraxinus americana	7	1	Dead	Deciduous
432	White Ash	Fraxinus americana	7	1	Dead	Deciduous
433	White Ash	Fraxinus americana	9	1	Dead	Deciduous
434	White Ash	Fraxinus americana	7	1	Dead	Deciduous
435	White Ash	Fraxinus americana	9	1	Dead	Deciduous
436	White Ash	Fraxinus americana	9	1	Dead	Deciduous
437	Washington Hawthorn	Crataegus phaenopyrum	8,6,4	3	Good	Deciduous
438	White Ash	Fraxinus americana	10,9	2	Dead	Deciduous
439	White Ash	Fraxinus americana	9	1	Dead	Deciduous
440	White Ash	Fraxinus americana	12	1	Dead	Deciduous
441	White Ash	Fraxinus americana	10	1	Dead	Deciduous
442	White Ash	Fraxinus americana	6	1	Dead	Deciduous
443	White Ash	Fraxinus americana	10	1	Dead	Deciduous
444	Silver Maple	Acer saccharinum	8	1	Fair	Deciduous
445	White Ash	Fraxinus americana	7	1	Dead	Deciduous
446	White Ash	Fraxinus americana	9	1	Dead	Deciduous
447	White Ash	Fraxinus americana	7	1	Dead	Deciduous
448	White Ash	Fraxinus americana	6	1	Dead	Deciduous
449	White Ash	Fraxinus americana	11,8	2	Dead	Deciduous
450	White Ash	Fraxinus americana	6	1	Dead	Deciduous
451	White Ash	Fraxinus americana	8	1	Dead	Deciduous
452	Slippery Elm	Ulmus rubra	10	1	Fair	Deciduous
453	White Ash	Fraxinus americana	10	1	Dead	Deciduous
454	White Ash	Fraxinus americana	9	1	Dead	Deciduous
455	White Ash	Fraxinus americana	9	1	Poor	Deciduous
456	White Ash	Fraxinus americana	6	1	Dead	Deciduous
457	White Ash	Fraxinus americana	6	1	Dead	Deciduous
458	White Ash	Fraxinus americana	11	1	Dead	Deciduous
459	Crabapple	Malus coronaria	13	1	Fair	Deciduous
460	White Ash	Fraxinus americana	10	1	Dead	Deciduous
461	White Ash	Fraxinus americana	7	1	Dead	Deciduous
462	White Ash	Fraxinus americana	7	1	Dead	Deciduous
463	White Ash	Fraxinus americana	8	1	Poor	Deciduous
464	White Ash	Fraxinus americana	13	1	Poor	Deciduous
465	White Ash	Fraxinus americana	11	1	Dead	Deciduous
466	Silver Maple	Acer saccharinum	15,11,10,11	4	Fair	Deciduous
467	White Ash	Fraxinus americana	10,7	2	Dead	Deciduous
468	White Ash	Fraxinus americana	9	1	Dead	Deciduous
469	White Ash	Fraxinus americana	9	1	Dead	Deciduous
470	White Ash	Fraxinus americana	8,4	2	Dead	Deciduous
471	White Ash	Fraxinus americana	9	1	Dead	Deciduous
472	White Ash	Fraxinus americana	10	1	Dead	Deciduous
473	Crabapple	Malus coronaria	12	1	Poor	Deciduous
474	Red Oak	Quercus rubra	24	1	Good	Deciduous
475	Silver Maple	Acer saccharinum	13,11,11,10	4	Good	Deciduous
476	Hackberry	Celtis occidentalis	8,8,9	3	Good	Deciduous
477	White Ash	Fraxinus americana	11	1	Dead	Deciduous
478	White Ash	Fraxinus americana	9	1	Dead	Deciduous
479	Hackberry	Celtis occidentalis	7	1	Fair	Deciduous
480	Hackberry	Celtis occidentalis	8	1	Fair	Deciduous
481	Red Oak	Quercus rubra	7	1	Good	Deciduous
482	Red Oak	Quercus rubra	7,7	2	Good	Deciduous
483	Black Locust	Robinia pseudoacacia	10,10	2	Poor	Deciduous
484	White Ash	Fraxinus americana	7	1	Dead	Deciduous
485	Red Oak	Quercus rubra	25	1	Good	Deciduous
486	Red Oak	Quercus rubra	23	1	Good	Deciduous
487	Red Oak	Quercus rubra	11,8	2	Good	Deciduous
488	Red Oak	Quercus rubra	20	1	Good	Deciduous
489	Red Oak	Quercus rubra	17	1	Fair	Deciduous
490	Red Oak	Quercus rubra	24	1	Good	Deciduous
491	Red Mulberry	Morus rubra	8	1	Poor	Deciduous
492	Red Mulberry	Morus rubra	7	1	Dead	Deciduous
493	Hackberry	Celtis occidentalis	12	1	Good	Deciduous
494	Eastern Cottonwood	Populus deltoides	12	1	Fair	Deciduous
495	White Ash	Fraxinus americana	12	1	Dead	Deciduous
496	White Ash	Fraxinus americana	9	1	Dead	Deciduous
497	White Ash	Fraxinus americana	8	1	Dead	Deciduous
498	Black Cherry	Prunus serotina	6	1	Fair	Deciduous
499	White Ash	Fraxinus americana	10	1	Dead	Deciduous
500	White Ash	Fraxinus americana	13	1	Dead	Deciduous

501	White Ash	Fraxinus americana	8	1	Poor	Deciduous
502	White Ash	Fraxinus americana	8	1	Dead	Deciduous
503	White Ash	Fraxinus americana	8,10	2	Dead	Deciduous
504	White Ash	Fraxinus americana	9	1	Dead	Deciduous
505	White Ash	Fraxinus americana	6	1	Dead	Deciduous
506	White Ash	Fraxinus americana	8	1	Dead	Deciduous
507	White Ash	Fraxinus americana	8	1	Dead	Deciduous
508	White Ash	Fraxinus americana	11	1	Dead	Deciduous
509	White Ash	Fraxinus americana	7	1	Dead	Deciduous
510	White Ash	Fraxinus americana	7	1	Dead	Deciduous
511	Silver Maple	Acer saccharinum	7	1	Good	Deciduous
512	White Ash	Fraxinus americana	8	1	Dead	Deciduous
513	White Ash	Fraxinus americana	7	1	Dead	Deciduous
514	White Ash	Fraxinus americana	8	1	Dead	Deciduous
515	White Ash	Fraxinus americana	12	1	Dead	Deciduous
516	White Ash	Fraxinus americana	8	1	Dead	Deciduous
517	White Ash	Fraxinus americana	9	1	Dead	Deciduous
518	White Ash	Fraxinus americana	6,6	2	Dead	Deciduous
519	White Ash	Fraxinus americana	6	1	Dead	Deciduous
520	White Ash	Fraxinus americana	6	1	Dead	Deciduous
521	White Ash	Fraxinus americana	2,8	2	Dead	Deciduous
522	White Ash	Fraxinus americana	9	1	Dead	Deciduous
523	White Ash	Fraxinus americana	6	1	Dead	Deciduous
524	White Ash	Fraxinus americana	6	1	Dead	Deciduous
525	Sugar Maple	Acer saccharum	7	1	Fair	Deciduous
526	Eastern Cottonwood	Populus deltoides	14,13	2	Good	Deciduous
527	Sugar Maple	Acer saccharum	7	1	Fair	Deciduous
528	Sugar Maple	Acer saccharum	6	1	Fair	Deciduous
529	White Ash	Fraxinus americana	7	1	Dead	Deciduous
530	Eastern Cottonwood	Populus deltoides	11	1	Good	Deciduous
531	Eastern Cottonwood	Populus deltoides	12	1	Fair	Deciduous
532	Sugar Maple	Acer saccharum	9	1	Good	Deciduous
533	Sugar Maple	Acer saccharum	9	1	Good	Deciduous
534	White Ash	Fraxinus americana	7,7	2	Dead	Deciduous
535	Eastern Cottonwood	Populus deltoides	14	1	Good	Deciduous
536	Sugar Maple	Acer saccharum	7	1	Good	Deciduous
537	White Ash	Fraxinus americana	7	1	Dead	Deciduous
538	Eastern Cottonwood	Populus deltoides	15	1	Good	Deciduous
539	White Ash	Fraxinus americana	6	1	Dead	Deciduous
540	White Ash	Fraxinus americana	6	1	Dead	Deciduous
541	White Ash	Fraxinus americana	6	1	Dead	Deciduous
542	White Ash	Fraxinus americana	6	1	Dead	Deciduous
543	White Ash	Fraxinus americana	6	1	Dead	Deciduous
544	White Ash	Fraxinus americana	6	1	Dead	Deciduous
545	Sugar Maple	Acer saccharum	6,8	2	Good	Deciduous
546	Eastern Cottonwood	Populus deltoides	13	1	Good	Deciduous
547	Eastern Cottonwood	Populus deltoides	7	1	Good	Deciduous
548	Eastern Cottonwood	Populus deltoides	11	1	Fair	Deciduous
549	White Ash	Fraxinus americana	7	1	Dead	Deciduous
550	Eastern Cottonwood	Populus deltoides	6	1	Dead	Deciduous
551	Sugar Maple	Acer saccharum	7	1	Fair	Deciduous
552	Sugar Maple	Acer saccharum	6	1	Fair	Deciduous
553	Eastern Cottonwood	Populus deltoides	7	1	Fair	Deciduous
554	Sugar Maple	Acer saccharum	7	1	Fair	Deciduous
555	Eastern Cottonwood	Populus deltoides	8	1	Fair	Deciduous
556	Eastern Cottonwood	Populus deltoides	9	1	Good	Deciduous
557	Eastern Cottonwood	Populus deltoides	10,10	2	Good	Deciduous
558	Eastern Cottonwood	Populus deltoides	13	1	Fair	Deciduous
559	Eastern Cottonwood	Populus deltoides	12,7	2	Fair	Deciduous
560	Eastern Cottonwood	Populus deltoides	6	1	Dead	Deciduous
561	Sugar Maple	Acer saccharum	8	1	Fair	Deciduous
562	Sugar Maple	Acer saccharum	6	1	Fair	Deciduous
563	Eastern Cottonwood	Populus deltoides	9	1	Fair	Deciduous
564	Eastern Cottonwood	Populus deltoides	6	1	Poor	Deciduous
565	Eastern Cottonwood	Populus deltoides	8	1	Fair	Deciduous
566	White Ash	Fraxinus americana	6	1	Dead	Deciduous
567	Sugar Maple	Acer saccharum	6	1	Poor	Deciduous
568	Eastern Cottonwood	Populus deltoides	20,17	2	Fair	Deciduous
569	White Ash	Fraxinus americana	6	1	Dead	Deciduous
570	Eastern Cottonwood	Populus deltoides	15	1	Fair	Deciduous
571	Eastern Cottonwood	Populus deltoides	17,11	2	Fair	Deciduous
572	Eastern Cottonwood	Populus deltoides	8	1	Fair	Deciduous
573	Eastern Cottonwood	Populus deltoides	12	1	Poor	Deciduous
574	Eastern Cottonwood	Populus deltoides	12	1	Poor	Deciduous
575	Eastern Cottonwood	Populus deltoides	12	1	Fair	Deciduous
576	Sugar Maple	Acer saccharum	6,6	2	Fair	Deciduous
577	Sugar Maple	Acer saccharum	6	1	Fair	Deciduous
578	Eastern Cottonwood	Populus deltoides	8	1	Fair	Deciduous
579	Eastern Cottonwood	Populus deltoides	20	1	Fair	Deciduous
580	Eastern Cottonwood	Populus deltoides	7	1	Fair	Deciduous
581	Eastern Cottonwood	Populus deltoides	6	1	Poor	Deciduous
582	Sugar Maple	Acer saccharum	9	1	Fair	Deciduous
583	Eastern Cottonwood	Populus deltoides	11	1	Fair	Deciduous
584	Sugar Maple	Acer saccharum	9,7	2	Good	Deciduous
585	Sugar Maple	Acer saccharum	7,6	2	Good	Deciduous
586	Sugar Maple	Acer saccharum	6	1	Good	Deciduous
587	Sugar Maple	Acer saccharum	7,7	2	Poor	Deciduous
588	Sugar Maple	Acer saccharum	6	1	Fair	Deciduous
589	Eastern Cottonwood	Populus deltoides	8	1	Good	Deciduous
590	Eastern Cottonwood	Populus deltoides	7	1	Dead	Deciduous
591	Eastern Cottonwood	Populus deltoides	11	1	Good	Deciduous
592	Eastern Cottonwood	Populus deltoides	13	1	Good	Deciduous
593	Eastern Cottonwood	Populus deltoides	8	1	Good	Deciduous
594	Sugar Maple	Acer saccharum	6	1	Good	Deciduous
595	Sugar Maple	Acer saccharum	7,6	2	Good	Deciduous
596	White Ash	Fraxinus americana	17	1	Dead	Deciduous
597	Sugar Maple	Acer saccharum	8	1	Poor	Deciduous
598	Sugar Maple	Acer saccharum	7	1	Fair	Deciduous
599	Sugar Maple	Acer saccharum	7	1	Fair	Deciduous
600	Sugar Maple	Acer saccharum	7,6	2	Fair	Deciduous

601	White Ash	Fraxinus americana	12	1	Dead	Deciduous
602	White Ash	Fraxinus americana	10	1	Dead	Deciduous
603	Sugar Maple	Acer saccharum	6	1	Fair	Deciduous
604	Silver Maple	Acer saccharinum	9,9,9	3	Fair	Deciduous
605	Silver Maple	Acer saccharinum	9,7	2	Fair	Deciduous
606	Silver Maple	Acer saccharinum	12,8,10,13,6,6	6	Fair	Deciduous
607	Silver Maple	Acer saccharinum	12	1	Poor	Deciduous
608	White Ash	Fraxinus americana	6	1	Dead	Deciduous
609	White Ash	Fraxinus americana	7,7	2	Dead	Deciduous
610	White Ash	Fraxinus americana	10	1	Dead	Deciduous
611	Sugar Maple	Acer saccharum	8	1	Fair	Deciduous
612	Sugar Maple	Acer saccharum	6	1	Poor	Deciduous
613	Sugar Maple	Acer saccharum	8,7	2	Good	Deciduous
614	Silver Maple	Acer saccharinum	25	1	Good	Deciduous
615	White Ash	Fraxinus americana	7	1	Dead	Deciduous
616	White Ash	Fraxinus americana	9	1	Dead	Deciduous
617	Silver Maple	Acer saccharinum	8,6,7,9	4	Fair	Deciduous
618	Silver Maple	Acer saccharinum	13	1	Good	Deciduous
619	Sugar Maple	Acer saccharum	10,7	2	Good	Deciduous
620	Sugar Maple	Acer saccharum	7	1	Fair	Deciduous
621	Silver Maple	Acer saccharinum	9,9,6,7,6,8,7,7	8	Fair	Deciduous
622	Sugar Maple	Acer saccharum	7	1	Dead	Deciduous
623	Sugar Maple	Acer saccharum	7,7,9,7	4	Fair	Deciduous
624	Sugar Maple	Acer saccharum	8	1	Fair	Deciduous
625	Sugar Maple	Acer saccharum	8	1	Fair	Deciduous
626	Slippery Elm	Ulmus rubra	9	1	Fair	Deciduous
627	Silver Maple	Acer saccharinum	14	1	Fair	Deciduous
628	Silver Maple	Acer saccharinum	19	1	Fair	Deciduous
629	Silver Maple	Acer saccharinum	13	1	Fair	Deciduous
630	Slippery Elm	Ulmus rubra	7	1	Fair	Deciduous
631	Silver Maple	Acer saccharinum	10	1	Poor	Deciduous
632	Silver Maple	Acer saccharinum	6	1	Fair	Deciduous
633	Silver Maple	Acer saccharinum	9	1	Fair	Deciduous
634	Silver Maple	Acer saccharinum	6	1	Poor	Deciduous
635	Silver Maple	Acer saccharinum	9,10,10	3	Fair	Deciduous
636	Silver Maple	Acer saccharinum	13,14	2	Fair	Deciduous
637	White Ash	Fraxinus americana	11	1	Dead	Deciduous
638	Silver Maple	Acer saccharinum	7	1	Fair	Deciduous
639	Silver Maple	Acer saccharinum	6	1	Fair	Deciduous
640	Silver Maple	Acer saccharinum	6	1	Good	Deciduous
641	Silver Maple	Acer saccharinum	7	1	Good	Deciduous
642	Silver Maple	Acer saccharinum	9,7,6	3	Good	Deciduous
643	Silver Maple	Acer saccharinum	12,13,13	3	Fair	Deciduous
644	Silver Maple	Acer saccharinum	6	1	Fair	Deciduous
645	Silver Maple	Acer saccharinum	7,7	2	Fair	Deciduous

Legend:

- Trees to Remain
- Trees to be Removed
- ~~DEAD~~ Dead Trees
- Tree Removed for Churchman/Cosgray (Not part of Ballantrae Woods Tree Replacement)

Tree Survey Data:

Total Trees: 595 Trees (7,664 Caliper Inches)

*Note: Tree Survey Data does not include trees in Cosgray & Churchman Road Right of Way

REVISIONS

MARK	DATE	DESCRIPTION

SCHOTTENSTEIN HOMES

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
PRELIMINARY DEVELOPMENT PLAN
FOR

BALLANTRAE WOODS

TREE SURVEY NOTES

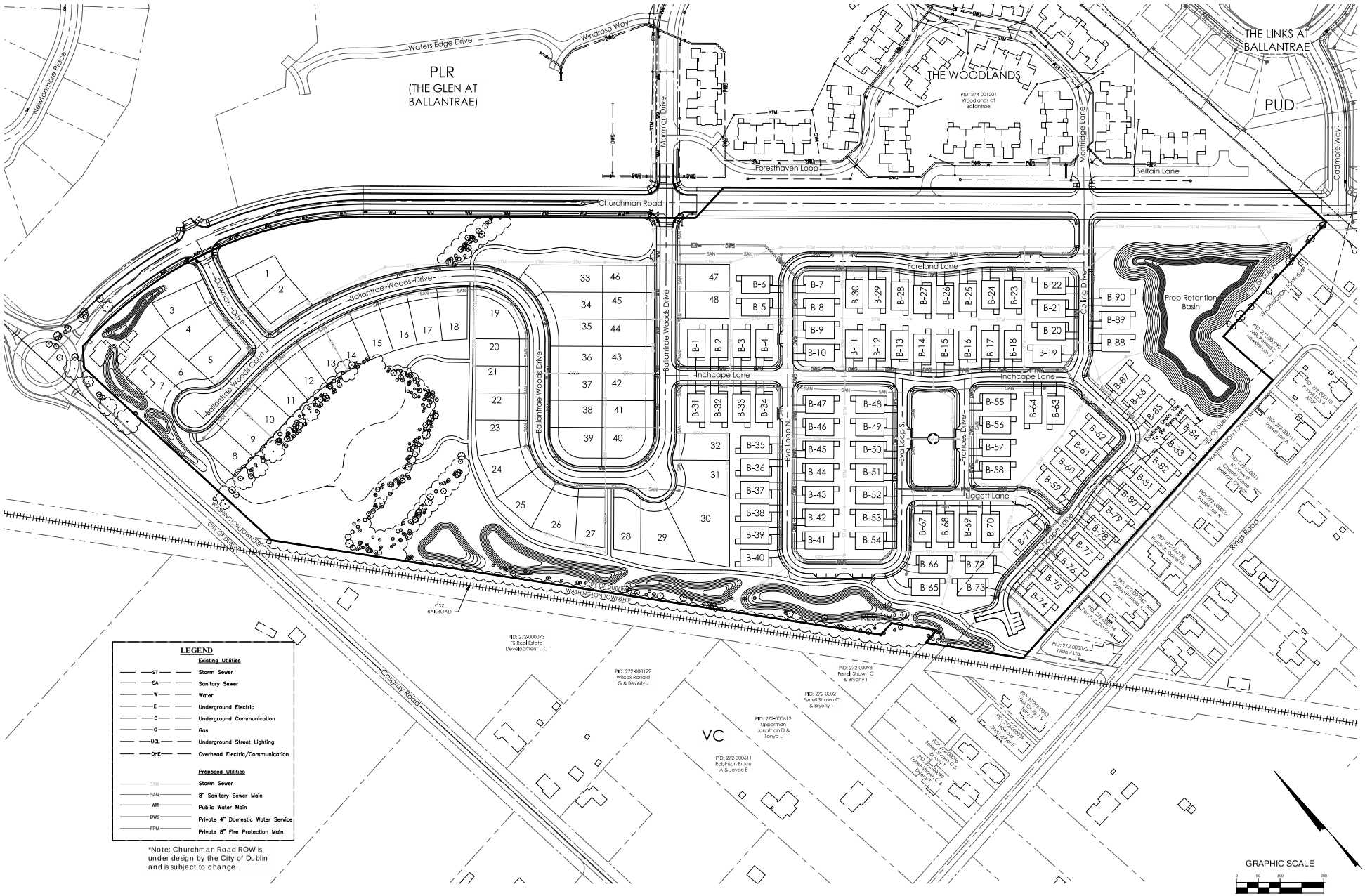
EMH&T

DATE
JANUARY 7, 2015

SCALE
1" = 100'

JOB NO.
20140749

SHEET
12/16



REVISIONS

MARK	DATE	DESCRIPTION

SCHOTTENSTEIN HOMES

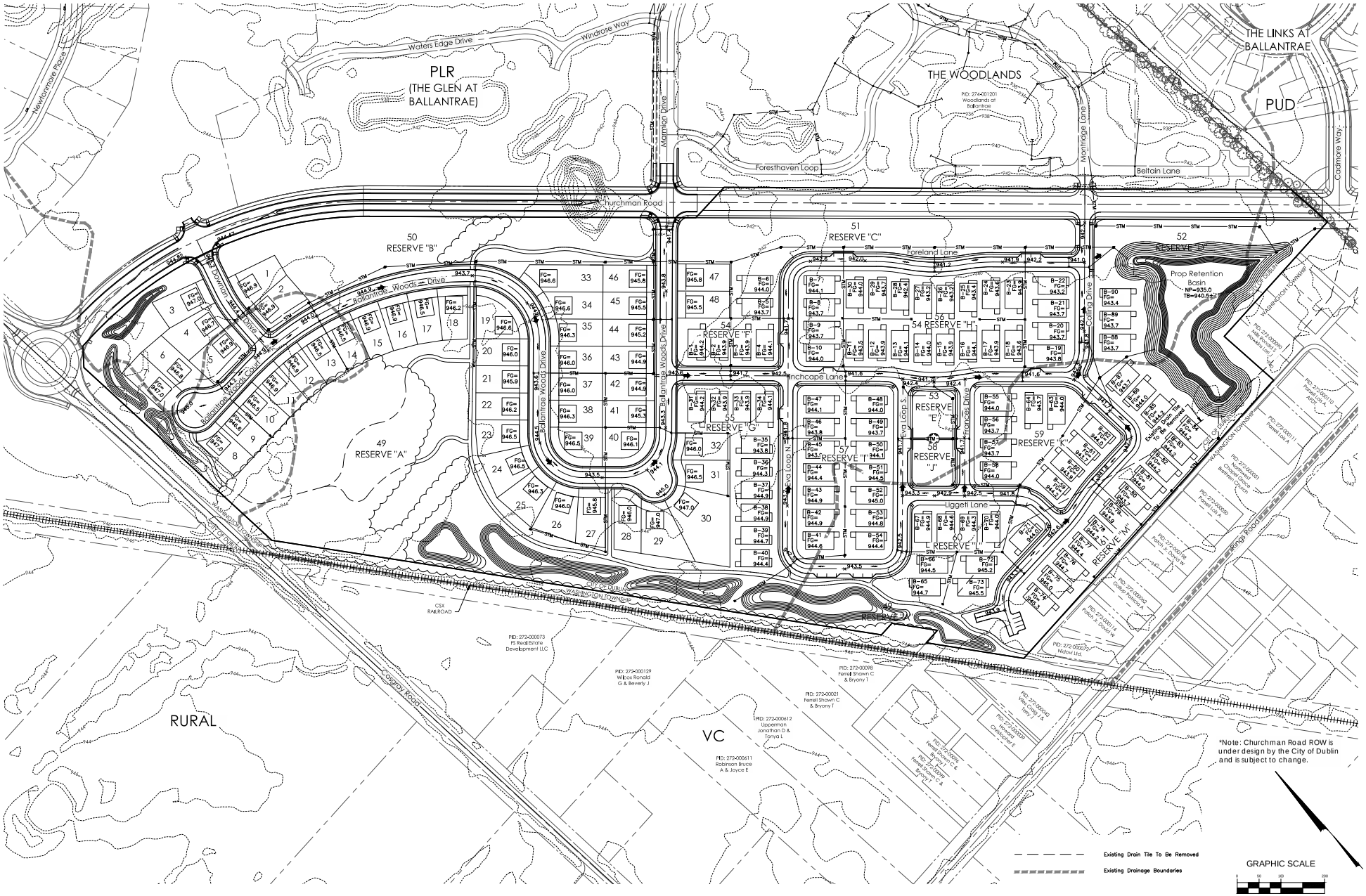
CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
PRELIMINARY DEVELOPMENT PLAN
FOR
BALLANTRAE WOODS
OVERALL UTILITY PLAN

DATE
JANUARY 7, 2015

SCALE
1" = 100'

JOB NO.
20140749

SHEET
13/16



REVISIONS

MARK	DATE	DESCRIPTION

SCHOTTENSTEIN HOMES

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
PRELIMINARY DEVELOPMENT PLAN
FOR

BALLANTRAE WOODS

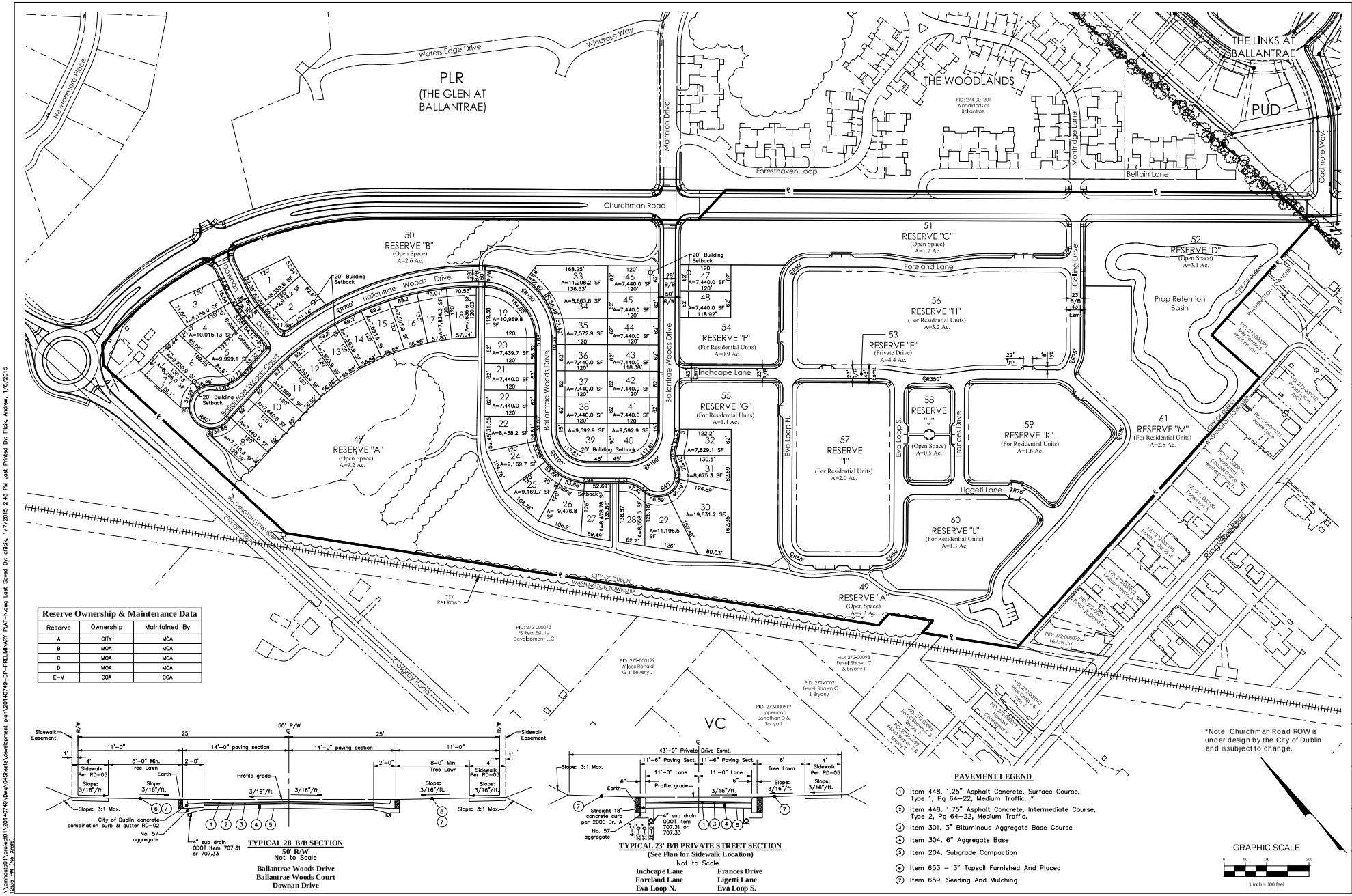
GRADING PLAN

DATE
JANUARY 7, 2015

SCALE
1" = 100'

JOB NO.
20140749

SHEET
14/16



Reserve Ownership & Maintenance Data		
Reserve	Ownership	Maintained By
A	CITY	MOA
B	MOA	MOA
C	MOA	MOA
D	MOA	MOA
E–M	COA	COA

TYPICAL 28' B/B SECTION
50' R/W
Not to Scale

Ballantrae Woods Drive
Ballantrae Woods Court
Downan Drive

TYPICAL 23' B/B PRIVATE STREET SECTION
(See Plan for Sidewalk Location)
Not to Scale

Inchcape Lane	**Frances Drive**
Foreland Lane	**Ligetti Lane**
Eva Loop N.	**Eva Loop S.**

*Note: Churchman Road ROW is under design by the City of Dublin and is subject to change.

PAVEMENT LEGEND

1. Item 448, 1.25" Asphalt Concrete, Surface Course, Type 1, Pg 64–22, Medium Traffic. *
2. Item 448, 1.75" Asphalt Concrete, Intermediate Course, Type 2, Pg 64–22, Medium Traffic.
3. Item 301, 3" Bituminous Aggregate Base Course
4. Item 304, 6" Aggregate Base
5. Item 204, Subgrade Compaction
6. Item 653 – 3" Topsoil Furnished And Placed
7. Item 659, Seeding And Mulching

GRAPHIC SCALE
0 50 100 200
1 inch = 100 feet

MARK	DATE	DESCRIPTION
REVISIONS		

SCHOTTENSTEIN HOMES

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
PRELIMINARY DEVELOPMENT PLAN
FOR

BALLANTRAE WOODS

PRELIMINARY PLAT

EMH&T
Engineers Surveyors Planners Scientists
5500 New Albany Road, Columbus, Ohio 43054
Phone: (614) 775-4500 FAX: (614) 775-4800

DATE: JANUARY 7, 2015
SCALE: 1" = 100'
JOB NO.: 20140749
SHEET: 15 /16

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
PRELIMINARY DEVELOPMENT PLAN
FOR
BALLANTRAE WOODS
AUTOTURN EXHIBIT

SCHOTTENSTEIN HOMES

DATE:	SCALE	JOB NO.	SHEET
JANUARY 7, 2015	1" = 100'	201407249	16/16

REVISIONS		
MARK	DATE	DESCRIPTION

*Note: Churchman Road ROW is under design by the City of Dublin and is subject to change.

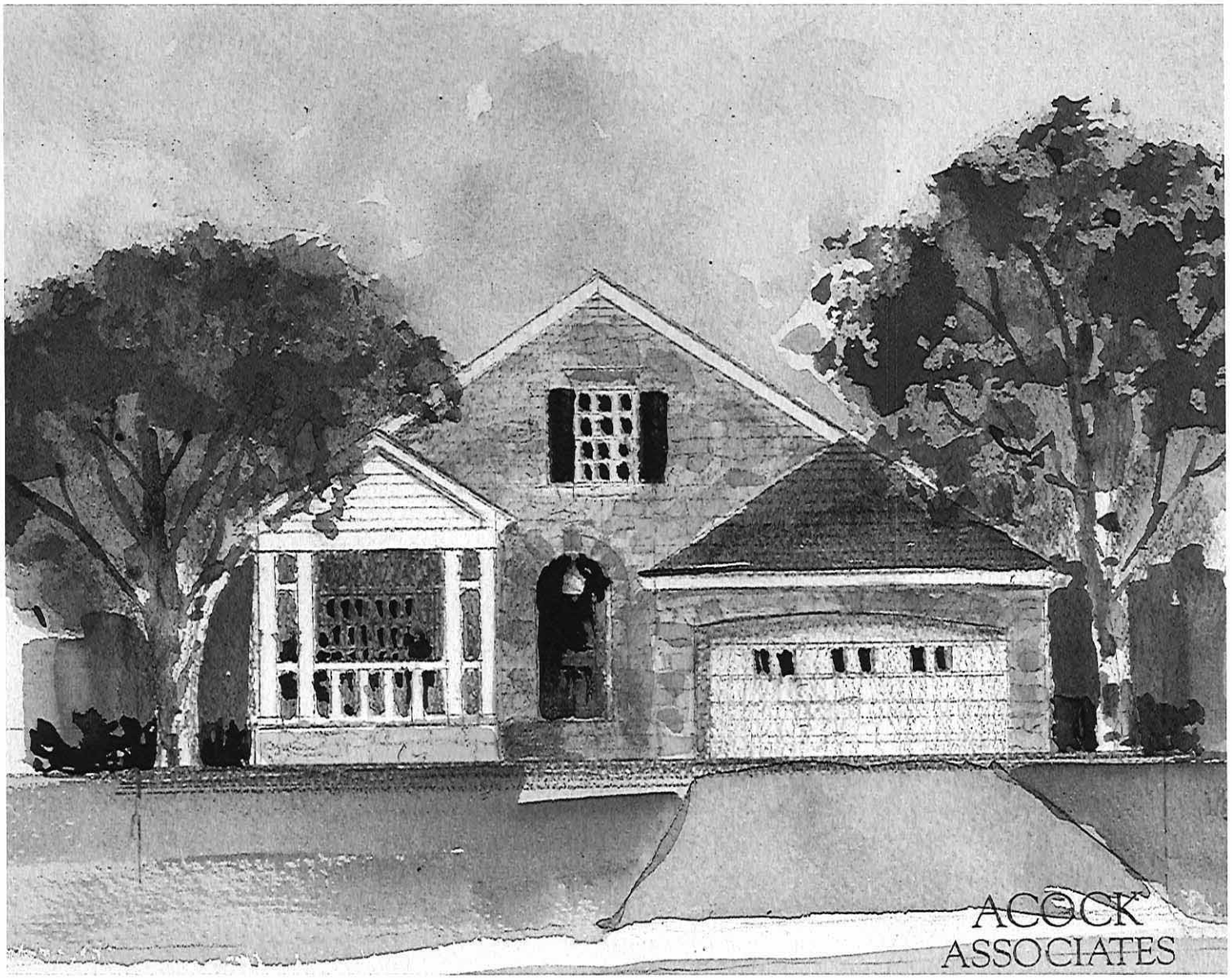
GRAPHIC SCALE
0 100 200
1 inch = 200 feet

Ladder Truck

	feet
Width	: 8.50
Track	: 6.60
Lock to Lock Time	: 6.0
Steering Angle	: 30.0

48.00
21.50
6.60

Cadmore Way
Ridge Road
Belfain Lane
Montridge Lane
Collins Drive
Foreland Lane
Lagash Lane
Equices Drive
Eve Loop S.
Eve Loop N.
Foresthaven Loop
Inchcape Lane
Marmion Drive
Churchman Road
Ballantrae Woods Drive
Waters Edge Drive
Ballantrae Woods Drive
Ballantrae Woods Court
Coffey Road
Newtonmore Place



Ballantrae Woods | Detached Condos - Architectural Character

Ballantrae Woods | Detached Condos - Architectural Character

Ballantrae Woods | Detached Condos - Architectural Character

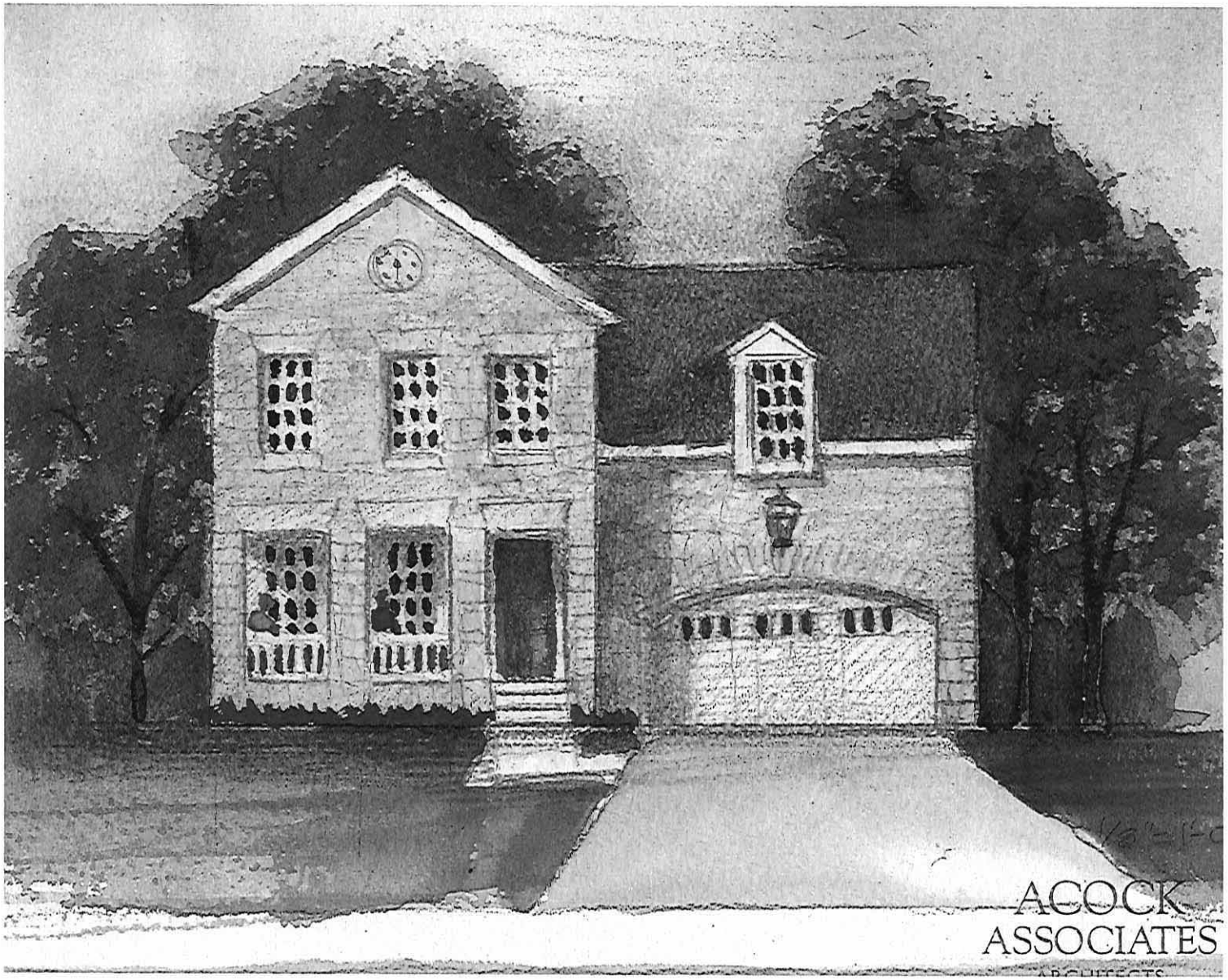
Ballantrae Woods | Detached Condos - Architectural Character

Ballantrae Woods | Detached Condos - Architectural Character

Ballantrae Woods | Detached Condos - Architectural Character

Ballantrae Woods | Single Family or Detached Condo - Architectural Character

Ballantrae Woods | Single Family - Architectural Character



Ballantrae Woods | Single Family - Architectural Character

Ballantrae Woods | Single Family - Architectural Character

SECTION IV – Appendix

QUIT CLAIM DEED, Short Form, Statutory Form No. 27-S (Reprinted 3/86) Registered in U.S. Patent and Trademark Office anderson publishing co. cincinnati, ohio 45201

QUIT-CLAIM DEED * 116378

EMMA K. PATCH, WIDOW, (1), of Franklin County,

for valuable consideration paid, grants(s) to DAVID W. PATCH, JR.

, whose tax-mailing address is

MAIL 6940 Rings Rd., Amlin, Ohio 43002

the following **REAL PROPERTY:** Situated in the County of Franklin in the State of Ohio and in the of : (2)

See Exhibit"A" hereto attached and made a part hereof.

TIME 9:52 A M
RECORDED FRANKLIN CO. OHIO

AUG 24 1987

JOSEPH W. TESTA, RECORDER
RECORDER'S FEE $ 10.00

Prior Instrument Reference: Vol. 00014 Page A08 of the ~~Deed~~ Official Records of Franklin County, Ohio. (3) ~~wife (husband) of the Grantor releases all rights of dower therein.~~ Witness my hand(s) this 23rd day of August , 1987.

Signed and acknowledged in the presence of:

Rosemarie R. Menapace
WITNESS

Emma K Patch
Emma K. Patch (4)

Reno J Menapace
WITNESS

State of Ohio County of Franklin ss.

BE IT REMEMBERED, That on this 23rd day of August , 19 87, before me, the subscriber, a Notary Public in and for said county, personally came, EMMA K. PATCH the Grantor(s) in the foregoing Deed, and acknowledged the signing thereof to be her voluntary act and deed.

IN TESTIMONY THEREOF, I have hereunto subscribed my name and affixed my seal on this day and year aforesaid Reno J Menapace

RENO J. MENAPACE, Attorney-At-Law
NOTARY PUBLIC, — STATE OF OHIO
My commission has no expiration date.
Section 147.03 R. C.

This instrument was prepared by Reno J. Menapace, Attorney at Law, 1375 London Dr., Columbus, Ohio 43221

1. Name of Grantor(s) and marital status.
2. Description of land or interest therein, and encumbrances, reservations, exceptions, taxes and assessments, if any.
3. Delete whichever does not apply.
4. Execution in accordance with Chapter 5301 of the Revised Code of Ohio.

17431

Auditor's and Recorder's Stamps

CONVEYANCE TAX
$5.00 DP
PALMER C McNEAL
FRANKLIN COUNTY AUDITOR

TRANSFERRED
AUG 24 1987
PALMER C. McNEAL
AUDITOR
FRANKLIN COUNTY, OHIO

* See Section 5302.11 Ohio Revised Code

102911

1029 A 12

Emma K. Patch, widow, to David W. Patch, Jr.

EXHIBIT "A"

Being an undivided one-half (½) interest in and to the following described real estate:

Situated in the Village of Amlin, County of Franklin and State of Ohio
Being Lots Numbers Two (2) and Nine (9) and Ten (10) in Ida N. Cramer and others' Amended Plat and addition to the said Village of Amlin, Franklin County,Ohio as per recorded plat thereof, of record in the Recorder's Office Franklin County,Ohio, in Plat Book 8, page 12A.

Also the following described real estate situate in the County of Franklin, in the State of Ohio and in the Township of Washington and bounded and described as follows:

Being part of Survey #6953, beginning in the center of the Dublin and Union County Free Turnpike at John Shire's S.E.corner; thence east in the center of said Pike eleven (11) feet; thence north one hundred and fifty (15) feet; thence west one hundred and eight (108) feet; thence S.E. with John Shire's E. line to the place of beginning containing thirty-three (33) rods of land, more or less and being part of the same tract conveyed to Joshua P. Freiszell by Henry Hensil and wife, by deed dated April 1, 1880, recorded in Volume 145,pages 176 and 177, Deed Records of Franklin County,Ohio and designated as Lot No. 2 in subdivision of lots.

EXCEPTING THEREFROM: Being a portion of Lot Number Two (2) of Ida M. Cramer's and Others Amended Plat and addition to the Village of Amlin as said lot is numbered and delineated upon the recorded plat thereof, of record in Plat Book 8,page 12-A Recorder's Office, Franklin County,Ohio, and bounded and described as follows:

Beginning at a point in the south line of the 15-foot wide alley north of Rings Road (Main Street) at the northeast corner of Lot Number One (1) of said Amended Plat and Addition and at the northwest corner of said Lot No 2; thence N 83° 21' E. along the south line of said alley and along a portion of the north line of said Lot No. 2 a distance of 15.17 feet to a point; thence S 30° 40' E through a portion of said Lot No. 2 a distance of 156.00 feet to a point at the intersection of the north right-of-way line of Rings Road (Main Street) (60 feet wide) with an east line of said Lot No. 1 and a west line of said Lot No. 2; thence N 39° 47' W along a portion of an east line of said Lot No. 1 and along a portion of a west line of said Lot No. 2 a distance of 143.90 feet to a corner of said Lot No. 1 and said Lot No. 2; thence N 6° 39' W along an east line of said Lot No. 1 and along a west line of said Lot No. 2 a distance of 22.00 feet to the place of beginning; containing 0.045acre of land more or less and being subject to all easements and restrictions of record.

8-24-87

N-87
ALL OF
114 & 113
WASH. HILLIARD S.D.

Instr:200004120071171 04/12/2000
Pages:2 Fee:$14.00 12:46PM
Richard B. Metcalf T20000047513
Franklin County Recorder MLCHRISTOP

QUIT-CLAIM DEED

JACK E. FINCH**, Married to Valerie N. Finch*, of Franklin County, Ohio, for valuable consideration paid, grants to ***VALERIE N. FINCH, whose tax-mailing address is 5000 Scioto Darby Road Hilliard, Ohio 43026, the following **REAL PROPERTY**: Situated in the County of Franklin, in the State of Ohio, in the Township of Washington and in the Village of Amlin:

See the attached "Exhibit A"

Parcel No. 272-000063-00 & 272-000208-00
Commonly Known As: 6960 Rings Road

Prior Instrument Reference: Vol. 11847, Page J09 of the Deed Records of Franklin County, Ohio. Witness my hand this 6th day of April, 2000.

Signed and acknowledged in the presence of:

Christopher J. Geer

Kellie S. Kesselring

Jack E. Finch

State of Ohio

County of Franklin ss:

BE IT REMEMBERED, that on this 6th day of April, 2000, before me, the subscriber, a Notary Public in and for said county, personally came, ***JACK E. FINCH***, the Grantor in the foregoing Deed, and acknowledged the signing thereof to be his voluntary act and deed.

IN TESTIMONY THEREOF, I have hereunto subscribed my name and affixed my seal on this day and year aforesaid.

Notary Public

CHRISTOPHER J. GEER, Attorney at Law
NOTARY PUBLIC, STATE OF OHIO
My commission has no expiration date.
Section 147.03 R.C.

This Instrument prepared by:

CHRISTOPHER J. GEER SC#0012371
Attorney at Law
MATAN, GEER & WRIGHT
261 South Front Street
Columbus, Ohio 43215
(614) 228-2678

TRANSFERRED
APR 12 2000
JOSEPH W. TESTA
AUDITOR
FRANKLIN COUNTY, OHIO

903525
CONVEYANCE TAX
EXEMPT
JOSEPH W. TESTA
FRANKLIN COUNTY AUDITOR

11847J10

EXHIBIT A

Situatedin the County of Franklin, State of Ohio, and in the Township of Washington and Village of Amlin:

Being Lot No. 3, the west half of Lot No. 4, Lot No. 11, Lot No. 12, and Lot Ho. 13 of Ida M. Crane and others' amended plat and addition to the Village of Amlin, Franklin County, Ohio as the same are numbered and delineated upon the recorded plat thereof of record in Plat Book 8, page 12A, Recorders Office, Franklin County, Ohio.

N-87
ALL OF
62
63
208
WASH TWP
SC. DAK. SD.
Bnd
6/30/88

N-87
ALL OF
208
63
(272)

Description Verified
John Circle, P.E., P.S.
Franklin County Engineer
Date 4-12-00

Quit Claim Deed - Ohio
Statutory Form

Instr:200101260016924 01/26/2001
Pages:6 Fee:$30.00 1:15PM
Robert G. Montgomery T20010011412
Franklin County Recorder MLALLEN YU

ntc

KNOW ALL MEN BY THESE PRESENTS

THAT

JAY W. LIGGETT aka JAY WILLIAM LIGGETT and
MARGARETT JO LIGGETT, His Wife,

of Franklin County, State of Ohio, for valuable consideration paid, grants

to

JAY W. LIGGETT, TRUSTEE OF THE JAY W. LIGGETT TRUST
DATED THE 5TH DAY OF January, 2001.

whose tax mailing address is

5800 Cosgray Road, Dublin, OH 43016-8735

the following real property:

TRACT I:

Situated in the County of Franklin, in the State of Ohio and in the Township of Washington, and bounded and described as follows:

Being Lot Number Six (6) as set off and assigned to Elizabeth Hoskinson in the case of Flora A. Marshall vs. Joseph Cosgray, et al., No. 91768 in the Court of Common Pleas of Franklin County, Ohio, being Lot No. 2 of the subdivision of the Homestead of Joseph Cosgray, deceased, bounded and described as follows:

Being a part of Survey No. 6953 Virginia Military Lands, beginning at a limestone in the center of the Dublin and Union County Free Turnpike, North West corner of Lot No. 1 of the subdivision of the old homestead of the said Joseph Cosgray; thence with said pike North 6° 45' W. 663.60 ft. to a limestone in the Southeast corner of Lot 3 of said subdivision; thence with the South line of said Lot No. 3 South 80° 37' W. 2331.78 feet to a stake in the west line of said homestead, being the south west corner of Lot No. 3; thence with the west line of said land S. 00° 40' East 663.61 feet to a stake in the north west corner of said Lot No. 1; thence with the north line of Lot No. 1, N. 80° 37' E. 2332.77 ft. to the place of beginning, and **containing "33.6 acres" except 1.43 acres** sold by George Cosgray to the Toledo & Ohio Central Railroad Company for a right of way by deed dated April 7, 1893, and recorded in Recorder's Office of Franklin County, Ohio, in D. B. 245, page 587, and **except 4.07 acres** sold by William H. Graham, executor of the estate of George Cosgray, deceased to Martha J. Geary, by deed dated December 17th, 1909, and recorded in the Recorder's Office, Franklin County, Ohio, in D. B. 497, page 60, and **leaving in said Parcel No. 6, 28.10 acres,** more or less.

Parcel No. 272-000174-00

0-110-A
All of
(272)
174

TRACT II:

Being a tract of land situated in the township, county and state aforesaid and being a part of Survey No. 6953 V.M. Land and a part of Lot No. 2, assigned to George Cosgray, Sr., in the subdivision of the Homestead of Joseph Cosgray, deceased.

Beginning at the S.W. corner of Lot No. 3 of said subdivision; thence East to the right-of-way of the Toledo & Ohio Central Rail Road Company; thence with the west line of said right-of-way South about 26 rods to an angle in said right-of-way; thence East with said right-of-way about 17 feet; thence South with the same right-

900888
CONVEYANCE TAX EXEMPT
TRANSFERRED
JAN 26 2001
JOSEPH W. TESTA
FRANKLIN COUNTY AUDITOR
JOSEPH W. TESTA
AUDITOR
FRANKLIN COUNTY, OHIO

of-way to the North line of Lot No. 1 in the aforesaid subdivision of the Homestead of Joseph Cosgray, deceased; thence West with said North line of Lot No. 1 to the East line of John Eversole's land; thence with said line North to the beginning, **containing 4 1/15 acres of land,** more or less, and are the same premises that William M. Graham, as Executor of the estate of George Cosgray, Sr., deceased, conveyed to Martha Geary by Deed dated December 17th, 1909.

Parcel No. 272-000103-00

O-110-A All of (272) 103

TRACT III:

Situated in the County of Franklin, State of Ohio and Township of Washington:

Being a part of Survey No. 6953 V.M. Land; beginning at a boulder stone in the S.E. corner of the Home Farm of Joseph Cosgray, deceased, and sub-divided among the heirs of said Joseph Cosgray, deceased, and in the center of the Dublin and Union County Free Pike; thence with the center of said Pike N. 6° 45' W. 38.04 poles to a limestone in said pike the S.E. corner to Lot No. 2 of said sub-division; thence with the south line of said Lot No. 2 S. 82° 37' W. 141.38 poles to a stake in the West line of said farm; thence with the West line thereof S. 6° 40' E. 38.04 poles to a boulder stone in the southwest corner of said Joseph Cosgray land and the N.W. corner of John Cramer land; thence with the North line of said Cramer land N. 82° 37' East 141.44 poles to the beginning, **containing Thirty-three and 6/10 acres of land** and being the south part of a tract of 98¼ acres of land conveyed to Joseph Cosgray by William L. Carey and others by deed dated June 10, 1837.

Always excepting and reserving from the foregoing description all that part heretofore conveyed as a right-of-way to the Toledo & Ohio Central Rail Road Company. Leaving **32.44 acres.**

Parcel No. 272-000104-00 **For description see Exhibit A attached.**

O-110-A All of (272) 104

ALSO

Real estate situated in the County of Franklin, in the State of Ohio, and in the Village of Amlin and in the Township of Washington and bounded and described as follows:

BEING Lots Nos. 7 and 8 of Ida M. Cramer and others amended plat and addition to the Village of Amlin, Franklin County, Ohio, as per the recorded plat thereof of record in the Recorder's Office, Franklin County, Ohio.

LDR: 24305J20

Parcel No. 272-000-100-00

N-87 All of (272) 100

ALSO

Situated in Franklin County, State of Ohio, Village of Amlin, Township of Washington and being Lot Number Fourteen (14) of IDA M. CRAMER, et al. Amended Plat and Subdivision of lands in said Village of Amlin, as the same is numbered and delineated upon the recorded plat thereof, of record in Plat Book 8, Page 12A, Recorder's Office, Franklin County, Ohio.

N-87 All of (272) 131

LDR: Volume 2547, Page 303

Parcel No. 272-000-131-00

ALSO

Situated in the State of Ohio, County of Franklin, City of Dublin, Virginia Military Survey Number 6953, being part of Parcel 4 of that tract of land conveyed to Shookuh B. Koozekananai, by deed of record in Deed Book 3650, Page 765, (all reference being to

the records of the Recorder's Office, Franklin County, Ohio) and more particularly described as follows:

Beginning at an iron pin set the northwesterly corner of Lot 2 of the subdivision entitled "Wilbur I. and Emma Cramer's First Addition to the Village of Amlin" of record in Plat Book 10, Page 98.

thence North 06° 35' 25" West, with the easterly line of that tract conveyed to Jay W. Liggett by deed of record in Deed Book 2547, Page 303, a distance of 510.62 feet to an iron pin set;

thence South 47° 50' 47" East, crossing said Parcel 4, a distance of 535.56 feet to an iron pin set in a westerly line of that tract conveyed to Ned E. Lare by deed of record in Deed Book 3798, Page 456;

thence South 06° 34' 07" East, with said westerly line a distance of 111.22 feet to P.K. Nail found at the northeasterly corner of Lot 12 of said subdivision;

thence South 83° 33' 53" West, with the northerly line of said subdivision, a distance of 353.13 feet to the True Point of Beginning, **containing 2.521 acres of land,** more or less.

Subject, however, to all legal rights-of-ways and/or easements, if any, of previous record.

Bearings for this description are based on the Ohio State Plane Coordinate System as per NAD 83. Control for bearings was from coordinates of F.C.G.S. Monument Numbers 5536 and 7752, establishing a bearing of South 85° 44' 20" East between said Monuments.

EVANS, MECHWART, HAMBLETON & TILTON, INC. by Matthew A. Kirk, Registered Surveyor No. 7865, June, 2000.

LDR:

Parcel No. 273-010-477

011 of (274) 330

ALSO

Real Estate situated in the County of Franklin, in the State of Ohio, and in the Township of Washington and bounded and described as follows:

Being part of Survey No. 6953, Virginia Military Lands and being Parcel 1, Parcel 2, Part of Parcel 3 and Parcel 4, as described in an Affidavit for Transfer in the Auditor's Affidavit Book 18, page 175, Auditor's Office, Franklin County, Ohio and being more particularly described as follows:

Beginning at a railroad spike set in the top of a post in the northerly line of an alley 15 ft. in width, shown on Ida M. Cramer's et al Amended Plat and Addition to the Village of Amlin, of record in Plat Book 8, page 12-A, Recorder's Office, Franklin County, Ohio, said alley being the first alley Northerly from Rings Road, said place of beginning also being the Southeasterly corner of the above mentioned Parcel No. 4; thence from said place of beginning, S. 83° 21' W. and along the northerly line of said alley 15 ft. in width, the southerly line of Parcel No. 4, a distance of 373.27 ft. to an iron pin at the intersection of the northerly line of said 15 ft. alley and the easterly line of First Avenue, 40 ft. in width, as shown on Ida M. Cramer, et al Amended Plat and Addition to the Village of Amlin; thence N. 6° 39' W. and along the easterly line of First Avenue, 40 ft. in width, the westerly line of Parcel No. 4, a distance of 190.00 ft. to an iron pin in the northerly line of Cramer Street, 40 ft. in width; thence S. 83° 21' W. and along the northerly line of Cramer Street, 40 ft. in width, the southerly line of Parcel No. 4, Parcel No. 1 and Parcel No. 3 a distance of 568.73 ft. to an iron pin at the southeasterly corner of a 0.07 Acre Tract described in Deed Book 1356, page 315 and in the name of the Toledo and Ohio Central Railroad Company, said iron pin being Easterly a distance of 63.0 ft. from the center line of the Toledo and Ohio Central Railroad; thence N. 30° 47' W. and along the easterly line of the said 0.07 Acre Tract and passing an iron pin on line at 99.19 ft., a distance of 100.00 ft. to a point

at the northeasterly corner of said 0.07 Acre Tract; thence S. 83° 21' W. and parallel to the northerly line of Cramer Street and along the northerly line of the said 0.07 Acre Tract a distance of 35.82 ft. to a point, said point being witnessed by an iron pin 0.81 ft. South, said point also being 33 ft. Easterly from the center line of the Toledo and Ohio Central Railroad; thence N. 39° 47' W. and along the westerly line of Parcel No. 3 and the westerly line of Parcel No. 2 and along the easterly right-of-way line of the Toledo and Ohio Central Railway and 33 ft. Easterly from the center line, a distance of 1167.82 ft. to an iron pin at the northwesterly corner of Parcel No. 2; thence N. 84° 25' 43" E., and along the northerly line of Parcel No. 2, a distance of 1659.72 ft. to a spike in the top of a post at the northeasterly corner of Parcel No. 2; thence S. 7° 11' E. and along the easterly line of Parcel No. 2 and Parcel No. 4, a distance of 1220.48 ft. to the place of beginning, **containing 33.073 acres;** subject to all easements and restrictions shown of record.

The above described property is the same property as described as Parcels 1, 2, 3 and 4 containing .85 acre, 25 acres, 3.71 acres, and 5.85 acres shown in the Certificate of Transfer from Margaret Finch, deceased, recorded in Deed Book 1622, page 194, excepting therefrom a tract of 0.07 acre conveyed by Effie R. Finch, Elsie E. Temple and others to The Toledo and Ohio Central Railway Company, recorded in Deed Book 1356, page 315.

The description shown in this deed was prepared by The Jennings-Lawrence Company, civil engineers, on February 7, 1963.

LDR: Volume 2547, Page 303

Parcel No. 273-010-326

EXCEPTING THEREFROM THE FOLLOWING:

Situated in the State of Ohio, County of Franklin, City of Dublin, Virginia Military Survey Number 6953, being part of that tract of land conveyed to Jay W. Liggett, by deed of record in Deed Book 2547, Page 303, (all reference being to the records of the Recorder's Office, Franklin County, Ohio) and more particularly bounded and described as follows:

Beginning, for reference, at the northwesterly corner of Lot 2 of the subdivision entitled "Wilbur I. and Emma Cramer's First Addition to the Village of Amlin" of record in Plat Book 10, Page 98.

thence North 06° 35' 25" West, with the easterly line of said Liggett tract, a distance of 510.62 feet to an iron pin set at the True Point of Beginning for this description;

thence North 47° 50' 47" West, crossing said Liggett tract, a distance of 762.75 feet to an iron pin set in the southerly line of that tract conveyed to Richard O. Wiseman by deed of record in Official Record 13280E08;

thence North 84° 49' 24" East, with said southerly line, a distance of 503.13 feet to an iron pin set in the westerly line of Parcel 4 of that tract conveyed to Shookuh B. Koozekananai by deed of record in Deed Book 3650, Page 765;

thence South 06° 35' 25" East, with said westerly line a distance of 561.00 feet to the True Point of Beginning, **containing 3.239 acres of land,** more or less.

Subject, however, to all legal rights-of-ways and/or easements, if any, of previous record.

Bearings for this description are based on the Ohio State Plane Coordinate System as per NAD 83. Control for bearings was from coordinates of F.C.G.S. Monument Numbers 5536 and 7752, establishing a bearing of South 85° 44' 20" East between said Monuments.

Evans, Mechwart, Hambleton & Tilton, Inc., by Matthew A. Kirk, Registered Surveyor No. 7865, June, 2000.

Leaving after said exception 29.834 acres, more or less.

All of

Description Verified
Dean Ringo, P.E., P.S.
Franklin County
Engineer
Date: 01/26/01

PRELIMINARY APPROVAL
FRANKLIN COUNTY ENGINEERING DEPT.
DATE: 1/19/2001 BY: BWM

(273) 010326 (274) 305

7735 7600

Parking (eg) bk description of P.P. ... described in DB 245 Pg 587

EXHIBIT A

ALSO EXCEPTING THEREFROM:

Real estate situated in Washington Township, Franklin County, Ohio and described as follows, to wit:

Being a strip of land 100 feet wide and 395 feet long and a strip of land 66 feet wide and 346 feet long in the lands in Survey 6953 Virginia Military Lands conveyed to Geo. Cosgray by deed dated 9 May, 1888, recorded in Vol. 196, page 1, Deed Records of Franklin County, Ohio. Said first mentioned strip being bounded on the east and south by said 66 foot strip on the south and west by a line 33 feet from and parallel with the center line of said railroad on the west and north by Barnet J. Cosgray's land, on the north and east by a line parallel with and 33 feet from the center line of said railroad. Said 100 foot strip being bounded on the east and south by lands of Martha J. Gray on the south and west by a line 50 feet from and parallel with the center line of said railroad, on the west and north by said 66 foot strip and on the north and east by a line 50 feet from and parallel with the center line of said railroad and **containing 1 43/100 acres of land.**

LDR: Volume 245, Page 587

Prior Instrument Reference: Deed Volume Page

Grantors respectively release all rights of dower therein.

WITNESS their hands this 5TH day of January, 2001.

Signed and acknowledged
in the presence of:

David F Allen

Judith F. Lowry
JUDITH F. LOWRY

Jay W. Liggett
JAY W. LIGGETT aka
JAY WILLIAM LIGGETT

Margarett Jo Liggett
MARGARETT JO LIGGETT

STATE OF OHIO
COUNTY OF UNION, ss:

Before me, a Notary Public in and for said County and State, personally appeared the above named

JAY W. LIGGETT aka JAY WILLIAM LIGGETT and
MARGARETT JO LIGGETT, His Wife,

who acknowledged that they did sign the foregoing instrument and that the same is their free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal at Marysville, Ohio this 5TH day of January, 2001.

NOTARY PUBLIC

DAVID F. ALLEN, Attorney at Law
NOTARY PUBLIC - STATE OF OHIO
My commission has no Expiration Date.
Section 147.03 R.C.

This instrument prepared by:

ALLEN, YURASEK & MERKLIN
Attorneys at Law
233 West Fifth Street
P.O. Box 391
Marysville, OH 43040-0391
Telephone: 937/642-4070

General Warranty Deed

200409280226413
Pgs: 3 $36.00 T20040084536
09/28/2004 3:33PM BXOHIO TITLE
Robert G. Montgomery
Franklin County Recorder

KNOW ALL MEN BY THESE PRESENTS,

Dorothy Thomas, unmarried, of FRANKLIN County, Ohio, for valuable consideration paid, grants, with general warranty covenants, to **Edwards Golf Communities, LLC, an Ohio limited liability company**, whose tax-mailing address is 495 S. High Street, Suite 150, Columbus, OH 43215,

an undivided one-half interest in the real property more particularly described on Exhibit "A" attached hereto and made a part hereof.

Subject to the following: The lien of any taxes and assessments not now due and payable; zoning ordinances and regulations; legal highways; and restrictions, conditions, reservations and easements of record.

Prior Instrument Reference: Instrument No. 200009290198495 and at Instrument No. 200009290198519, Franklin County, Ohio records.

EXECUTED by **Dorothy Thomas**, this 28th day of September, 2004.

Dorothy Thomas
Dorothy Thomas

CONVEYANCE TAX
$ 1.50
JOSEPH W. TESTA
FRANKLIN COUNTY AUDITOR

26469
TRANSFERRED
SEP 28 2004
JOSEPH W. TESTA
AUDITOR
FRANKLIN COUNTY, OHIO

STATE OF OHIO)
) SS:
COUNTY OF FRANKLIN)

BE IT REMEMBERED, That on this 28th day of September, 2004, before me, the subscriber, a Notary Public in and for said county, personally came, **Dorothy Thomas**, and acknowledged the signing thereof to be her voluntary act and deed.

IN TESTIMONY THEREOF, I have hereunto subscribed my name and affixed my seal this day and year aforesaid.

OHIO TITLE BOX

No. 132524

Richard A. Utz
Notary Public

NOTARIAL SEAL
STATE OF OHIO

RICHARD A. UTZ
Notary Public, State of Ohio
My Commission Has No
Expiration Date

This instrument prepared by:
Richard A. Utz, Attorney at Law
155 W. Main Street, Suite 200
Columbus, Ohio 43215

Exhibit "A"

Description of 7.294 Acres:

Situated in the State of Ohio, County of Franklin, City of Dublin, Virginia Military Survey Number 6953, being part of Parcel 2 of that tract of land conveyed to Shookuh B. Koozekananai by deed of record in Deed Book 3650, Page 765, (all references being to the records of the Recorder's Office, Franklin County, Ohio) and more particularly bounded and described *as* follows:

Beginning, for reference, at Franklin County Geodetic Survey Monument Number 0049, at the centerline intersection of Rings Road and Cosgray Road;

thence North 05° 29' 31" West, with the centerline of said Cosgray Road, a distance or 1793.64 feet to a railroad spike found at the northwesterly corner of that tract conveyed to Richard O. Wiseman by deed of record in Official Record I3280E08 at the True Point of Beginning for this description;

thence North 05° 29' 31" West, continuing with said centerline, a distance of 441 .24 feet to a mag nail set;

thence crossing said Parcel 2, the following courses and distances:

North 84° 30' 29" East, a distance or 50.00 feet to an iron pin set;
North 39° 30' 29" East, a distance of 49.50 feet to an iron pin set;
North 84° 30' 29" East, a distance of 23.62 feet to an iron pin set at a point of curvature to the right;

with the arc of said curve (Delta = 47° 38' 44", Radius = 865.00 feet) a chord bearing and distance of South 71° 40' 09" East, 698.76 feet to an iron pin set; and South 47° 50' 47" East, a distance: of 269.44 feet to an iron pin set in the northerly line of said Wiseman tract;

thence South 84° 49' 24" West, with said northerly line, a distance of 929.39 feet to the True Point of Beginning, containing 7.294 acres of land, more or less, 0.304 acre of which falls within the presently occupied right-of-way of Cosgray Road.

Bearings for this description are based on the Ohio State Plane Coordinate System as per NAD 83. Control for bearings was from coordinates of F.C.G.S. Monument Numbers 5536 and 7752, establishing a bearing of South 85° 44' 20" East between said Monuments.

(continued)

Description of 8.171 Acres:

Situated in the State of Ohio, County of Franklin, City of Dublin, Virginia Military Survey Number 6953, being part of that tract of land conveyed lo Richard O. Wiseman by deed of record in Official Record 13280E08, (all references being to the records of the Recorder's Office, Franklin County, Ohio) and more particularly hounded and described as follows:

Beginning, for reference, at an iron pin set at the northwesterly corner of Lot 2 of the subdivision entitled "Wilbur I. and Emma Cramer's First Addition to the Village of Amlin" of record in Plat Book 10, Page 98.

thence North 06° 35' 25" West, with the easterly line of that tract conveyed to Jay W. Liggett by deed of record in Deed Book 2547, Page 303, a distance of 1071.62 feet to an iron pin found;

thence South 84° 49' 24" West, with the northerly line of said Liggett tract, a distance of 598.33 feet to an iron pin set at the True Point of Beginning for this description;

thence South 84° 49' 24" West, with said northerly line, a distance of 1061.51 feet to an iron pin found in the easterly right-of-way line of the Conrail Railroad;

thence North 39° 16' 17" West, with said easterly right-of-way line, a distance of 340.84 feet to a railroad spike found in the centerline of Cosgray Road;

thence North 05° 29' 31" West, with said centerline, a distance of 68.76 feet to a railroad spike found at the southwesterly corner of Parcel 2 of that tract conveyed to Shookuh B. Koozekananai by deed of record in Deed Book 3650, Page 765;

thence North 84° 49' 24" East, with the southerly line of said Parcel 2, a distance of 929.39 feet to an iron pin set;

thence South 47° 50' 47" East, crossing said Wiseman tract, 477.39 feet to the True Point of Beginning, containing 8.171 acres of land, more or less, 0.047 acre of which falls within the presently occupied right-of'-way of Cosgray Road.

Bearings for this description are based on the Ohio State Plane Coordinate System as per NAD 83. Control for bearings was from coordinates or F.C.G.S. Monument Numbers 5536 and 7752, establishing a bearing of South 85°44' 20" East between said Monuments.

Parcel Nos. 274-000297-00 and 274-000304-00

DESCRIPTION VERIFIED
DEAN C. RINGLE, P.E.,P.S.
BY: CR
DATE: 4/23/14

Ida M. Cramer's & Others amended plat and addition

To The

Village of Amlin

Franklin Co. Ohio.

BOOK 8 PAGE 12-A

SCALE 50 FT = 1 IN.

H. J. Converse C.E.

KNOW ALL MEN BY THESE PRESENTS THAT WE IDA M. CRAMER, JOHN A. CRAMER, ET AL ARE LAWFULLY SEILED OF THE TRACT OF LAND SITUATE IN WASHINGTON TOWNSHIP FRANKLIN COUNTY OHIO AS SHOWN BY THIS PLAT AND DESIGNATED "IDA M. CRAMER'S AMENDED PLAT AND ADDITION TO THE VILLAGE OF AMLIN, FRANKLIN COUNTY OHIO. THAT WE HAVE CAUSED THE SAME TO BE LAID OUT INTO INLOTS AND NUMBERED AS INDICATED BY SAID PLAT, TO WHICH REFERENCE IS HEREBY MADE FOR FURTHER DESCRIPTION. WE HEREBY DEDICATE TO PUBLIC USE ALL THE STREETS AND ALLEYS SHOWN UPON SAID PLAT AS BEING A PART OF SAID AMENDED PLAT AND ADDITION. IN WITNESS WHEREOF WE HAVE HEREUNTO SET OUR HANDS THIS 17th DAY OF JULY A.D. 1906

WITNESS: Jacob Hilbert Jr.
C. A. Orrison

Ida M. Cramer
John A. Cramer
Stephen Elzey
Louisa A. Elzey
A. J. De Witt
Lucy De Witt
Lillian Pendleton
E. D. Pendleton
L. P. Wolpert
Freida Wolpert
Mary E. Davis
Charles B. Davis

"Hilde Bidet"
Delivered by Ida M. Cramer Aug 8-06

STATE OF OHIO, FRANKLIN COUNTY SS.

BE IT REMEMBERED THAT ON THIS 17th DAY OF JULY A.D. 1906, BEFORE THE SUBSCRIBER A NOTARY PUBLIC IN AND FOR SAID COUNTY PERSONALLY CAME THE ABOVE NAMED GRANTORS AND ACKNOWLEDGED THE SIGNING OF THE SAME TO BE THEIR VOLUNTARY ACT FOR THE USES AND PURPOSES THEREIN MENTIONED.

IN TESTIMONY WHEREOF I HAVE HEREUNTO SUBSCRIBED MY NAME AND AFFIXED MY OFFICIAL SEAL ON THE DAY AND YEAR LAST AFORESAID.

Charles A. Orrison
NOTARY PUBLIC IN AND FOR FRANKLIN COUNTY, OHIO.

I HEREBY CERTIFY THAT I HAVE MADE A SURVEY OF IDA M CRAMER'S AMENDED PLAT AND ADDITION TO THE VILLAGE OF AMLIN FRANKLIN COUNTY OHIO AND STAKED IN STREETS, ALLEYS AND LOTS AS SHOWN ON THE PLAT HERETO ATTACHED.

Howard J. Converse SURVEYOR.

APPROVED 7-21-06 Walter Braun County Surveyor

APPROVED July 21st 1906
Peter Swickard
W. S. Carlisle
Morton Hayes
County Commissioners

TRANSFERRED July 23' 06.
L. E. Jones
C. Auditor

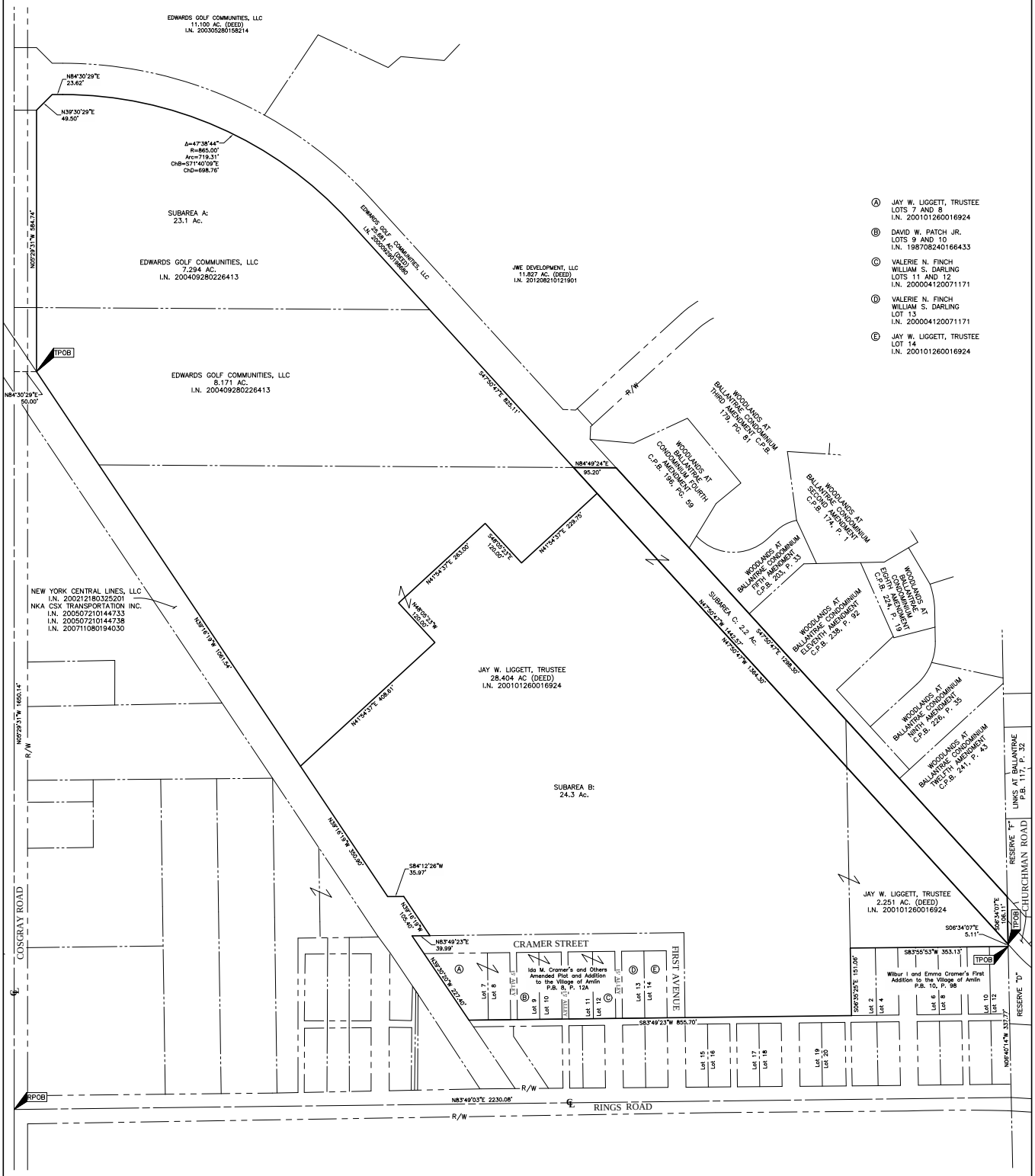
FILED July 23 to 1906 - 10
RECORDED July 24th 1906 PD. B
Geo. W. Mecklem
Co. Rec.
By J. C. Jones Dep.

12-A

ZONING EXHIBIT

VIRGINIA MILITARY SURVEY NO. 6953

CITY OF DUBLIN, COUNTY OF FRANKLIN, STATE OF OHIO



EMHT

Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers • Surveyors • Planners • Scientists
5500 New Albany Road, Columbus, OH 43054
Phone: 614.775.4500 Toll Free: 888.775.3648
emht.com

Date:	December 12, 2014
Scale:	1" = 100'
Job No:	2014-0749
Sheet:	1 of 1

REVISIONS

MARK	DATE	DESCRIPTION

Schottenstein Homes / Schottenstein Homes: Cosgray / Zoning / 2014-0749 / 20140749-VS-ZONE-01

ZONING DESCRIPTION
SUBAREA A
23.1 ACRES

Situate in the State of Ohio, County of Franklin, City of Dublin, lying in Virginia Military Survey Number 6953, being part of those 7.294 and 8.171 acre tracts conveyed to Edwards Golf Communities, LLC by deed of record in Instrument Number 200409280226413 and part of that 28.404 acre tract conveyed to Jay W. Liggett, Trustee by deed of record in Instrument Number 200101260016924, (all references refer to the records of the Recorder's Office, Franklin County, Ohio) being more particularly described as follows:

Beginning, for reference, at the centerline intersection of Cosgray Road with Rings Road;

Thence North 05° 29' 31" West, with the centerline of said Cosgray Road, a distance of 1650.13 feet to a point;

Thence North 84° 30' 29" East, across the right-of-way of said Cosgray Road and that tract conveyed to New York Central Lines, LLC by deed of record in Instrument Number 200212180325201, now known as CSX Transportation Inc. by deeds of record in Instrument Number 200507210144733, Instrument Number 200507210144738 and Instrument Number 200711080194030, a distance of 50.00 feet to a point in the line common to said 8.171 acre tract and said CSX Transportation Inc. tract, the TRUE POINT OF BEGINNING;

Thence North 05° 29' 31" West, across said 8.171 and 7.294 acre tract, a distance of 584.74 feet to a point in the southerly line of that 25.681 acre tract conveyed to Edwards Golf Communities, LLC by deed of record in Instrument Number 200009290198680;

Thence with the line common to said 7.294 and 25.681 acre tracts, the following courses and distances:

North 39° 30' 29" East, a distance of 49.50 feet to a point;

North 84° 30' 29" East, a distance of 23.62 feet to a point of curvature; and

with the arc of a curve to the right, having a central angle of 47° 38' 44", a radius of 865.00 feet, an arc length of 719.31 feet, a chord bearing of South 71° 40' 09" East and chord distance of 698.76 feet to a point of tangency;

Thence South 47° 50' 47" East, with the northeasterly line of said 7.294 and 8.171 acre tract, the southwesterly line of said 25.681 acre tract, partially across said 28.404 acre tract , a distance of 825.11 feet to a point;

Thence across said 28.404 acre tract, the following course and distances:

South 41° 54' 37" West, a distance of 229.75 feet to a point;

North 48° 05' 23" West, a distance of 120.00 feet to a point;

South 41° 54' 37" West, a distance of 263.00 feet to a point;

South 48° 05' 23" East, a distance of 120.00 feet to a point; and

South 41° 54' 37" West, a distance of 408.61 feet to a point in the northeasterly line of said CSX Transportation Inc. tract;

Thence North 39° 16' 19" West, with the southwesterly line of said 28.404 and 8.171 acre tracts, the northeasterly line of said CSX Transportation Inc. tract, a distance of 1061.54 feet to the TRUE POINT OF BEGINNING, containing 23.1 acres, more or less.

EVANS, MECHWART, HAMBLETON & TILTON, INC.

HLK
23_1 ac 20140749-VS-ZONE-01

ZONING DESCRIPTION
SUBAREA B
24.3 ACRES

Situate in the State of Ohio, County of Franklin, City of Dublin, lying in Virginia Military Survey Number 6953, being part of those 28.404 and 2.251 acre tracts conveyed to Jay W. Liggett, Trustee by deed of record in Instrument Number 200101260016924, all of Lots 7, 8 and 14 of "Ida M. Cramer's and Others Amended Plat and Addition to the Village of Amlin", a subdivision of record in Plat Book 8, Page 12A, as conveyed to Jay W. Liggett, Trustee by deed of record in Instrument Number 200101260016924, all of Lots 9 and 10 of said subdivision as conveyed to David W. Patch Jr. by deed of record in Instrument Number 198708240166433 and Lots 11, 12 and 13 of said subdivision as conveyed to Valerie N. Finch and William S. Darling by deed of record in Instrument Number 200004120071171, also part of Cramer Street, First Avenue and three (3) 15 feet wide alleys dedicated by said "Ida M. Cramer's and Others Amended Plat and Addition to the Village of Amlin", (all references refer to the records of the Recorder's Office, Franklin County, Ohio) being more particularly described as follows:

Beginning, for reference, at the centerline intersection of Rings Road and Cosgray Road;

Thence North 83° 49' 03" East, with the centerline of said Rings Road, a distance of 2230.08 feet to a point;

Thence North 06° 40' 14" West, partially with the line common to "Wilbur I. and Emma Cramer's First Addition to the Village of Amlin", a subdivision of record in Plat Book 10, Page 98 and "Links at Ballantrae", a subdivision of record in Plat Book 117, Page 32, a distance of 337.77 feet to a point at the southeasterly corner of said 2.251 acre tract, in the westerly line of Reserve "D" of said "Links at Ballantrae", the TRUE POINT OF BEGINNING;

Thence South 83° 55' 53" West, with the southerly line of said 2.251 acre tract, the northerly line of said "Wilbur I. and Emma Cramer's First Addition to the Village of Amlin", a distance of 353.13 feet to a point in the easterly line of said 28.404 acre tract;

Thence South 06° 35' 25" East, with the line common to said 28.404 acre tract and said "Wilbur I. and Emma Cramer's First Addition to the Village of Amlin", a distance of 151.06 feet to a point in the northerly right-of-way line of a 15 feet wide alley of record in said "Ida M. Cramer's and Others Amended Plat and Addition to the Village of Amlin";

Thence South 83° 49' 23" West, with the southerly line of said 28.404 acre tract, the southerly lines of said Lots 14 through7, inclusive, said northerly right-of-way line and across said First Avneue and 15 feet wide alleys, a distance of 855.70 feet to a point in the northeasterly line of that tract conveyed to New York Central Lines, LLC by deed of record in Instrument Number 200212180325201, now known as CSX Transportation Inc. by deeds of record in Instrument Number 200507210144733, Instrument Number 200507210144738 and Instrument Number 200711080194030;

Thence North 39° 30' 20" West, with the westerly line of said Lot 7, the easterly line of said CSX Transportation, Inc. tract, across said Cramer Street, a distance of 227.40 feet to a point;

Thence North 83° 49' 23" East, with the northerly right-of-way line of said Cramer Street, a southerly line of said CSX Transportation, Inc. tract, a distance of 39.99 feet to a point at the southwesterly corner of said 28.404 acre tract;

Thence with the line common to said 28.404 acre tract and said CSX Transportation, Inc. tract, the following courses and distances:

North 39° 16' 19" West, a distance of 105.40 feet to a point;

South 84° 12' 26" West, a distance of 35.97 feet to a point; and

North 39° 16' 19" West, a distance of 350.90 feet to a point;

Thence across said 28.404 acre tract, the following courses and distances:

North 41° 54' 37" East, a distance of 408.61 feet to a point;

North 48° 05' 23" West, a distance of 120.00 feet to a point;

North 41° 54' 37" East, a distance of 263.00 feet to a point;

South 48° 05' 23" East, a distance of 120.00 feet to a point; and

North 41° 54' 37" East, a distance of 229.75 feet to a point;

Thence South 47° 50' 47" East, across said 28.404 and 2.251 acre tracts, a distance of 1364.30 feet to a point at the southwesterly corner of the westerly terminus of Churchman Road, of record in Plat Book 117, Page 32, being the northwesterly corner of said Reserve “D”;

Thence South 06° 34' 07" East, with the line common to said 2.251 acre tract and Reserve “D”, a distance of 5.11 feet to the TRUE POINT OF BEGINNING, containing 24.3 acres, more or less.

EVANS, MECHWART, HAMBLETON & TILTON, INC.

HLK
24_3 ac 20140749-VS-ZONE-01

ZONING DESCRIPTION
SUBAREA C
2.2 ACRES

Situate in the State of Ohio, County of Franklin, City of Dublin, lying in Virginia Military Survey Number 6953, being part of those 28.404 and 2.251 acre tracts conveyed to Jay W. Liggett, Trustee by deed of record in Instrument Number 200101260016924, (all references refer to the records of the Recorder's Office, Franklin County, Ohio) being more particularly described as follows:

Beginning, for reference, at the centerline intersection of Rings Road and Cosgray Road;

Thence North 83° 49' 03" East, with the centerline of said Rings Road, a distance of 2230.08 feet to a point;

Thence North 06° 40' 14" West, partially with the line common to "Wilbur I. and Emma Cramer's First Addition to the Village of Amlin", a subdivision of record in Plat Book 10, Page 98 and "Links at Ballantrae", a subdivision of record in Plat Book 117, Page 32, a distance of 342.88 feet to a point at southerly corner of the westerly terminus of Churchman Road, of record in Plat Book 117, Page 32, being in the easterly line of said 2.251 acre tract and at the northwesterly corner of Reserve "D" of said "Links at Ballantrae", the TRUE POINT OF BEGINNING;

Thence North 47° 50' 47" West, across said 2.251 and 28.404 acre tracts, a distance of 1442.57 feet to a point at the common corner of that 8.171 acre tract conveyed to Edwards Golf Communities, LLC by deed of record in Instrument Number 200409280226413 and that 25.681 acre tract conveyed to Edwards Golf Communities, LLC by deed of record in Instrument Number 200009290198680;

Thence North 84° 49' 24" East, with the line common to said 28.404 and 25.681 acre tracts, a distance of 95.20 feet to a point in the southwesterly line of "Woodlands at Ballantrae Condominium Fourth Amendment", of record in Condominium Plat Book 196, Page 59;

Thence South 47° 50' 47" East, with the northeasterly line of said 28.404 and 2.251 acre tracts, the southwesterly line of said "Woodlands at Ballantrae Condominium Fourth Amendment", "Woodlands at Ballantrae Condominium Fifth Amendment", of record in Condominium Plat Book 203, Page 33, "Woodlands at Ballantrae Condominium Eleventh Amendment", of record in Condominium Plat Book 238, Page 92, and "Woodlands at Ballantrae Condominium Twelfth Amendment", of record in Condominium Plat Book 241, Page 43, a distance of 1298.30 feet to a point in the easterly line of said 2.251 acre tract, the westerly terminus of said Churchman Road;

Thence South 06° 34' 07" East, with the easterly line of said 2.251 acre tract, the westerly terminus of said Churchman Road, a distance of 106.11 feet to the TRUE POINT OF BEGINNING, containing 2.2 acre, more or less.

EVANS, MECHWART, HAMBLETON & TILTON, INC.

HLK
2_2 ac 20140749-VS-ZONE-01

EMH&T
Engineers, Surveyors, Planners, Scientists

MEMO

Date: December 12, 2014

To: Aaron Stanford, PE, City of Dublin

From: Scott Shaffer, PE, EMH&T

Subject: Ballantrae Woods Utility Feasibility Memo

Copies: Paul Coppel, Schottenstein Homes

This memo has been prepared to summarize the availability of necessary utilities at the site of the future Ballantrae Woods single family and detached condominium home development.

Sanitary Sewer Extensions and Taps

Sanitary sewer service will extend from one location within the proposed development. An existing 8" sanitary sewer main runs along the south side of existing Marmion Drive and terminates at a manhole located at the south corner of the proposed intersection of Marmion Drive and Churchman Road. Flow from all of the single family and condominium homes will be directed to this existing main/manhole.

Storm Sewer Outlet

Storm sewer pipes and structures will be put in place to convey the runoff from the development to the proposed retention basin located on the east end of the site. The basin will be designed to with a storage volume of approximately 8.5 acre-feet, which will accommodate the proposed site's water quality and peak flow rate requirements.

Three outlet points exist that could be utilized to discharge runoff from the proposed basin:

1) Marmion drive – Based on the latest storm sewer calculations for Churchman Road, there is no capacity available within the existing 24" storm sewer for this site.

2) Montridge Lane – An existing 30" storm sewer constructed with the Woodlands at Ballantrae development is in place and was planned to convey a portion of the proposed site's runoff. The pipe will need to be extended to the proposed site with the construction of proposed Churchman Road. Further calculation will be necessary to confirm the flow rate that can be directed to this pipe.

3) Links at Ballantrae - A portion of the proposed basin's runoff can be directed to an existing storm sewer to the east, constructed with the Links at Ballantrae development.

Water Mains, Services and Taps

Water service to the development will be provided by connecting to two (2) 8" water main stubs which are being constructed with the improvements to Churchman Road. A public water main will be constructed to provide water service and fire protection through fire hydrants to the proposed single family section of the development. The public water main will be sized to meet jurisdictional requirements.

Water service to the condominium section of the development will be provided through private services. A master water meter and backflow preventer will be constructed at the northern end of the condominium section, south of the proposed intersection of Marmion Drive and Churchman Road. This private water main will connect to the proposed public main mentioned above. A private domestic water service line and a private fire protection line will extend throughout the condominium section of the development.

MEMO

Date: December 11, 2014

To: The City of Dublin

From: Doug Turney, PE, CFM

Subject: Preliminary Stormwater Management Plan – Ballantrae Woods

Copies: Linda Menerey; Scott Shaffer

1.0 INTRODUCTION

The following memo summarizes the preliminary stormwater management plan for the Ballantrae Woods Development (45 acres +/-) currently located in Washington Township south of the proposed Churchman Road improvements and north of the existing rail line. The development is a mix of single-family homes and detached condo products. Stormwater management will be per City of Dublin requirements using a single wet basin to provide water quality and peak flow rate control. The basin will outlet in two different directions, to the east to an existing storm line installed recently with the Links at Ballantrae Development and north to a storm sewer stub that drains through The Woodlands Development along Montridge Lane.

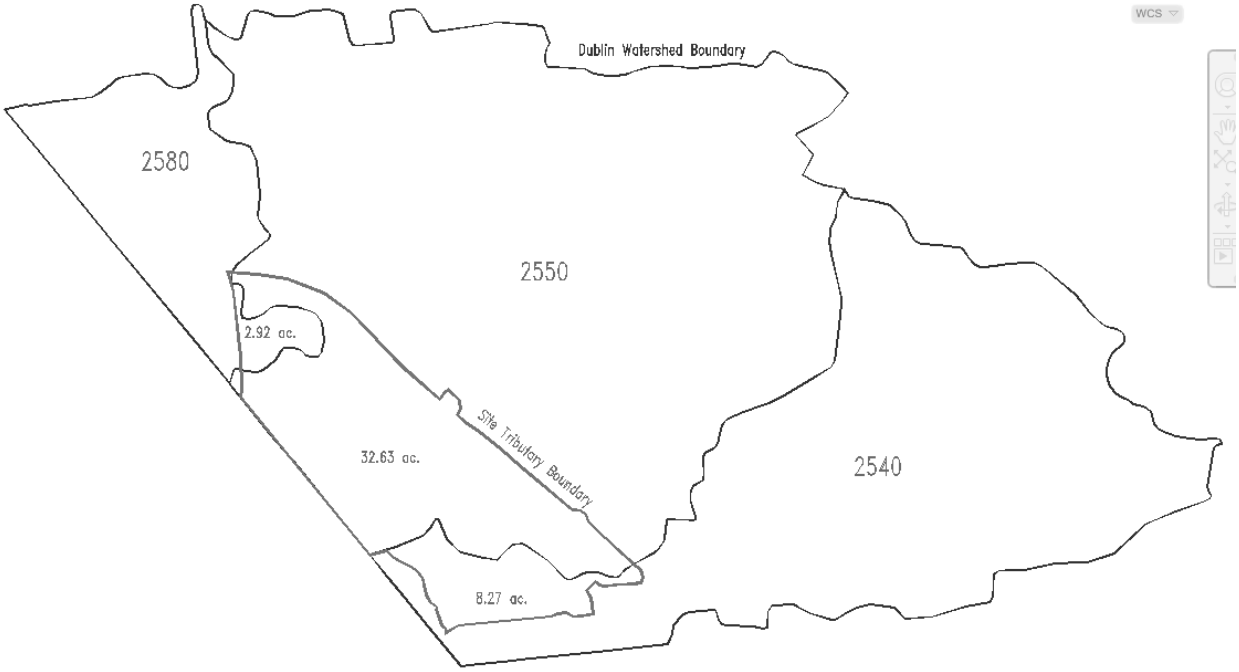
2.0 EXISTING CONDITIONS

Currently the site is mainly used for agricultural purposes with a small area of woods that will be preserved. The existing soil types are Kokomo, Lewisburg, and a small area of Crosby, all of which are classified as C or D soils depending on if they are currently being drained with field tile. The project is within the Cramer watershed, specifically Dublin subareas 2540, 2550, and 2580 as shown on Figure 1. The allowable release rates per acre are shown on Table 1.

Table 1
Dublin Subarea Release Rates

Storm Event (yr)	Subarea 2540 (cfs/acre)	Subarea 2550 (cfs/acre)	Subarea 2580 (cfs/acre)
1	0.1	0.1	0.3
2	0.1	0.1	0.4
5	0.2	0.1	0.5
10	0.2	0.1	0.7
25	0.3	0.2	0.9
50	0.4	0.3	1.2
100	0.5	0.3	1.6

Figure 1
Dublin Subarea Map with Site Overlay



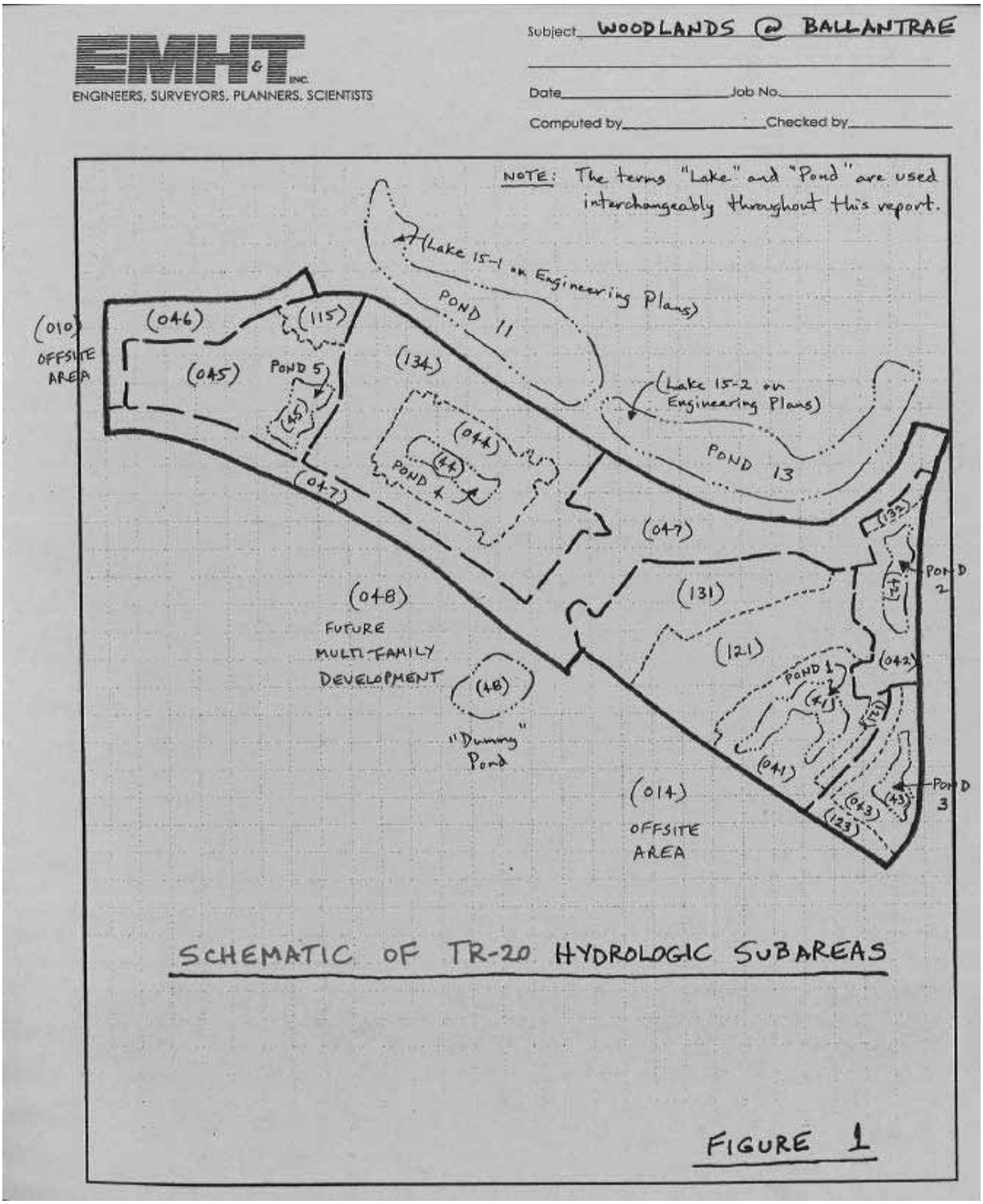
The previous report for this area was for the Woodlands at Ballantrae in December of 2004. The stormwater plan for this area indicated two outlet points for Subarea (048) and (014), see Figure 2. The premise of the design was that (048) would be detained and release to Subarea (047), which has a direct storm sewer release rate to Pond 13. Offsite area (014) was directed to a storm sewer within the Woodlands development that had a direct release also to Pond 13. Of the (5) basins shown on Figure 2 within the Woodlands Development, none of the basins were designed to take in any offsite area from this site. The offsite area was to be directed directly to the Ballantrae golf course basins.

From the Woodlands report, Subarea (048) had an area of 17.66 acres with a RCN of 86 and time of concentration of 20 minutes and a dummy detention basin to mimic post-developed flows. Subarea (014) was modeled with an area of 24.26 acres with a RCN of 78 and a time of concentration of 4.0 hours and no detention. The time of concentration for Subarea (014) was likely extended out to mimic the Master Plan release rates shown on Table 1.

The Links at Ballantrae report completed in 2013 did take in all of Cramer Watershed 2540 upstream of the site, of which 8.27 acres is located within this development, see Figure 1.

The 1-year existing conditions runoff volume was calculated for an area of 43.812 acres, which is the anticipated runoff area to the proposed basin that includes all of the site impervious area. The corresponding 1-year runoff volume is 2.043 ac-ft based on a RCN of 77.

Figure 2
Woodlands at Ballantrae Model Schematic
December 2004



4.0 POST-DEVELOPED ANALYSIS

In the post-developed condition, the RCN increased to 84 yielding a 1-year runoff volume of 3.244 ac-ft. The increase in runoff is 59%, corresponding to a 10-year critical storm. The allowable release rates per acre are calculated in Table 2. The total allowable is calculated in Table 3.

Table 2
Allowable Dublin Subarea Release Rates
Based on 10-year Critical storm

Storm Event (yr)	Subarea 2540 (cfs/acre)	Subarea 2550 (cfs/acre)	Subarea 2580 (cfs/acre)
1	0.1	0.1	0.3
2	0.1	0.1	0.3
5	0.1	0.1	0.3
10	0.1	0.1	0.3
25	0.3	0.2	0.9
50	0.4	0.3	1.2
100	0.5	0.3	1.6

Table 3
Total Allowable Dublin Subarea Release Rates
Based on 10-year Critical storm

Storm Event (yr)	Subarea 2540 8.27 Acres (cfs/acre)	Subarea 2550 32.63 Acres (cfs/acre)	Subarea 2580 2.92 Acres (cfs/acre)	Total Allowable (cfs)
1	0.83	3.26	0.87	4.96
2	0.83	3.26	0.87	4.96
5	0.83	3.26	0.87	4.96
10	0.83	3.26	0.87	4.96
25	2.48	6.53	2.62	11.63
50	3.31	9.79	3.50	16.59
100	4.14	9.79	4.67	18.59

There are three outlets that could be used to discharge runoff from the wet basin:

1) Marmion drive – Based on the latest storm sewer calculations for Churchman Road, there is no capacity available within this pipe system for our site.

2) Montridge Lane – Using the hydrology parameters for Offsite area (014) from the Woodlands report, the 100-year peak flow rate is 14.63 cfs. We will confirm that this flow rate can be pushed through this system to Pond 13.

3) Links at Ballantrae - From Table 3, 4.14 cfs can be pushed to Links at Ballantrae which was designed to take in this area.

The allowable outflow rate of 18.59 cfs is just slightly less than the available outlet capacity for outlets 2 and 3.

Water Quality Calculation

Tributary Area: 43.81
WQ Coeff.: 0.40

WQv = 1.10 ac-ft
WQ Elevation = 935.88

5.0 OUTLET DESIGN

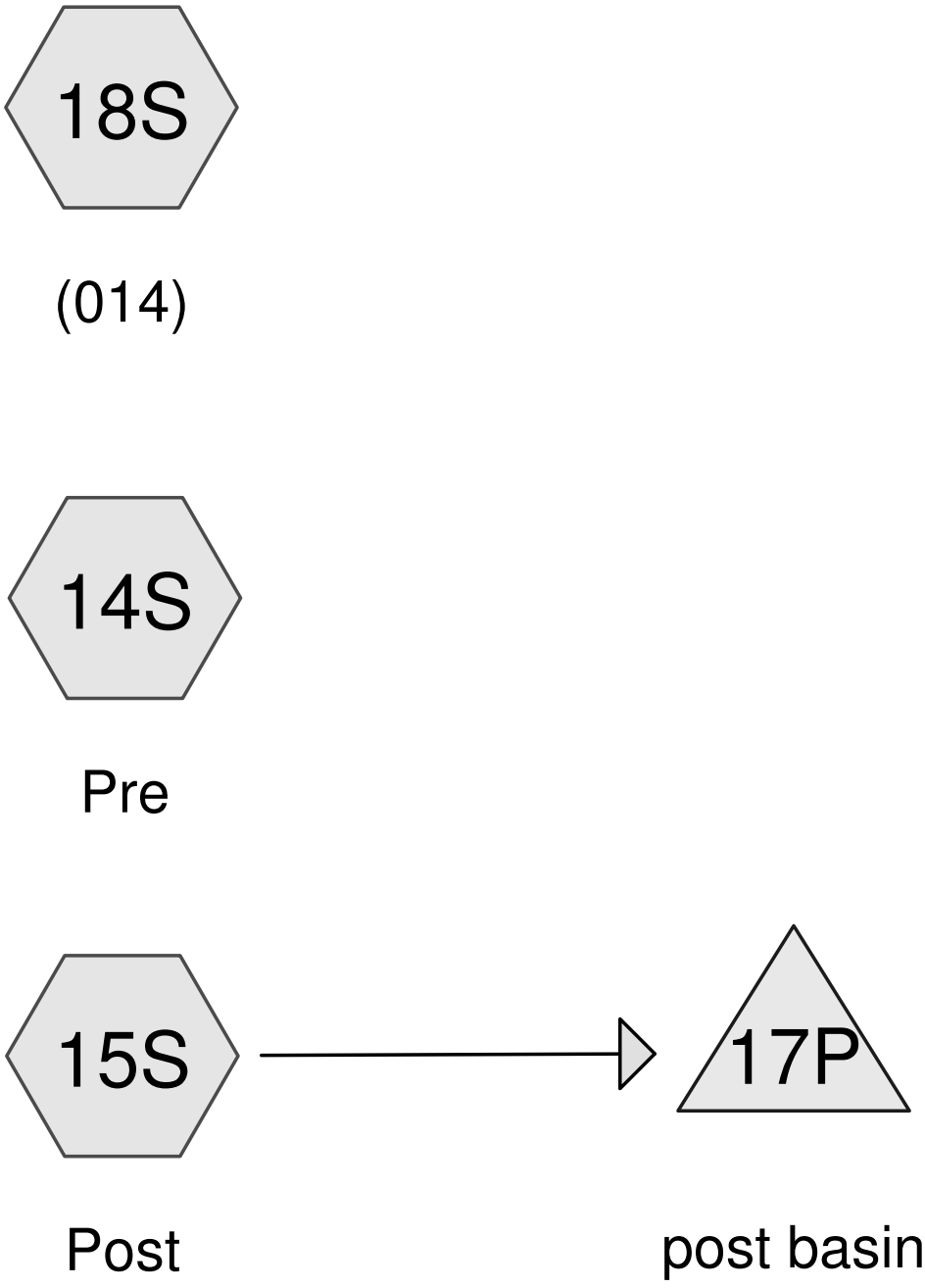
Wet Basin 01

- Normal Pool ± 935.00 ft.
- Top of Bank ± 941.00 ft.
- 1st stage outlet – 6.0" orifice @ 935.00 ft.
- 2nd stage outlet – (5) 4.0" orifices @ 936.00 ft.
- 3rd stage outlet – Catch Basin Grate @ 938.50 ft.
- Tailwater Control – 15" orifice @ 935.00 ft.

The resulting peak outflow rates and water elevations are shown on Table 4. The volume used for the 100-year event was 8.39 ac-ft to meet water quality and peak flow rate requirements.

Table 3
Total Allowable Dublin Subarea Release Rates
Based on 10-year Critical storm

Storm Event (yr)	Peak Release Rate (cfs)	Allowable Release Rate (cfs)	Peak Water Surface Elevation (ft)
1	2.19	4.96	936.46
2	3.12	4.96	936.97
5	4.15	4.96	937.76
10	4.85	4.96	938.43
25	10.87	11.63	939.01
50	11.92	16.59	939.70
100	12.95	18.59	940.43



Subcat Reach Pond Link

Routing Diagram for 20140749-onsite only
Prepared by Symanetc, Printed 12/11/2014

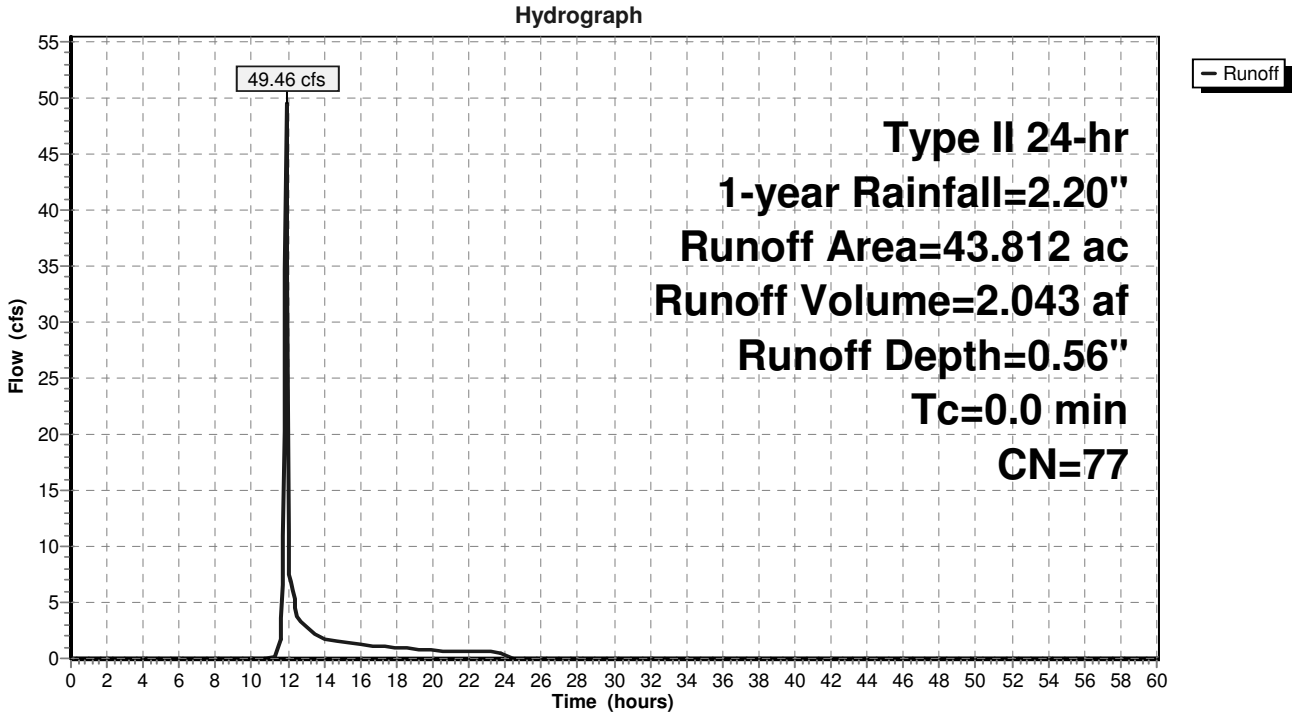
Summary for Subcatchment 14S: Pre

Runoff = 49.46 cfs @ 11.90 hrs, Volume= 2.043 af, Depth= 0.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.20"

	Area (ac)	CN	Description
*	32.102	78	
*	8.270	78	
*	3.440	70	
	43.812	77	Weighted Average
	43.812		100.00% Pervious Area

Subcatchment 14S: Pre



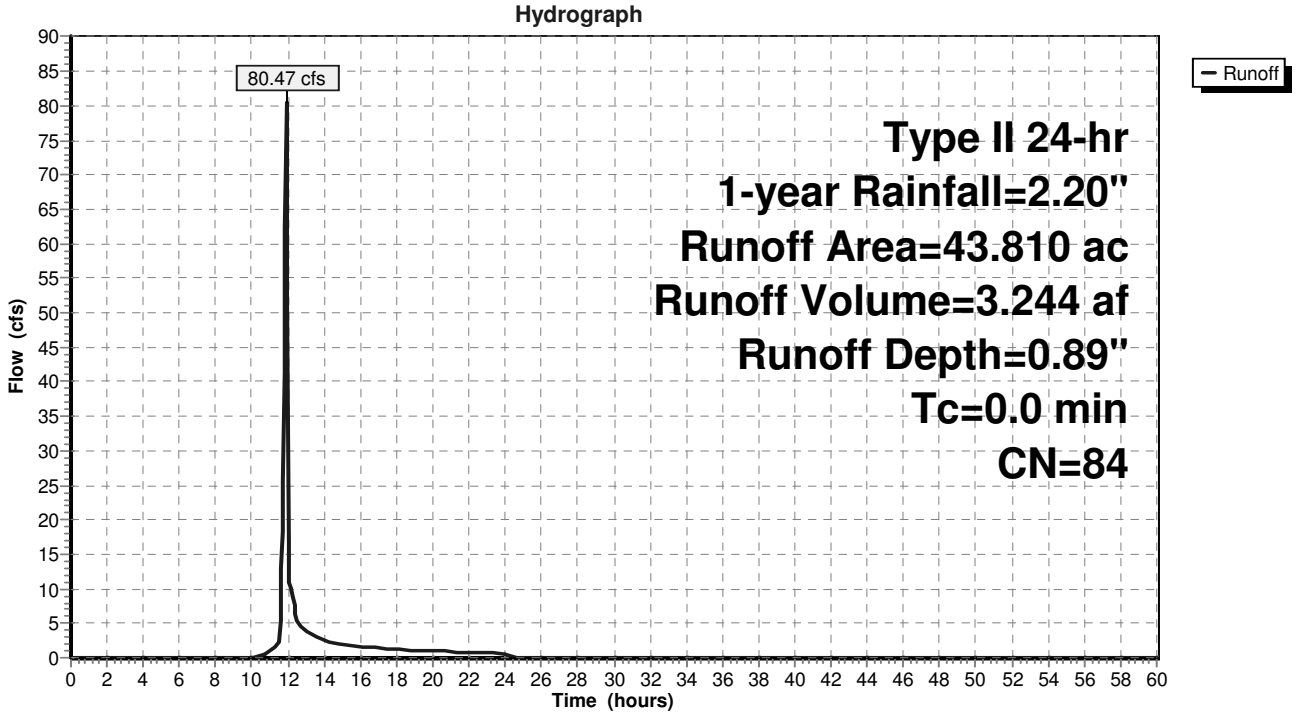
Summary for Subcatchment 15S: Post

Runoff = 80.47 cfs @ 11.89 hrs, Volume= 3.244 af, Depth= 0.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.20"

	Area (ac)	CN	Description
*	8.410	74	
*	3.200	70	
*	12.060	83	
*	18.640	90	
*	1.500	98	
	43.810	84	Weighted Average
	42.310		96.58% Pervious Area
	1.500		3.42% Impervious Area

Subcatchment 15S: Post



Summary for Subcatchment 18S: (014)

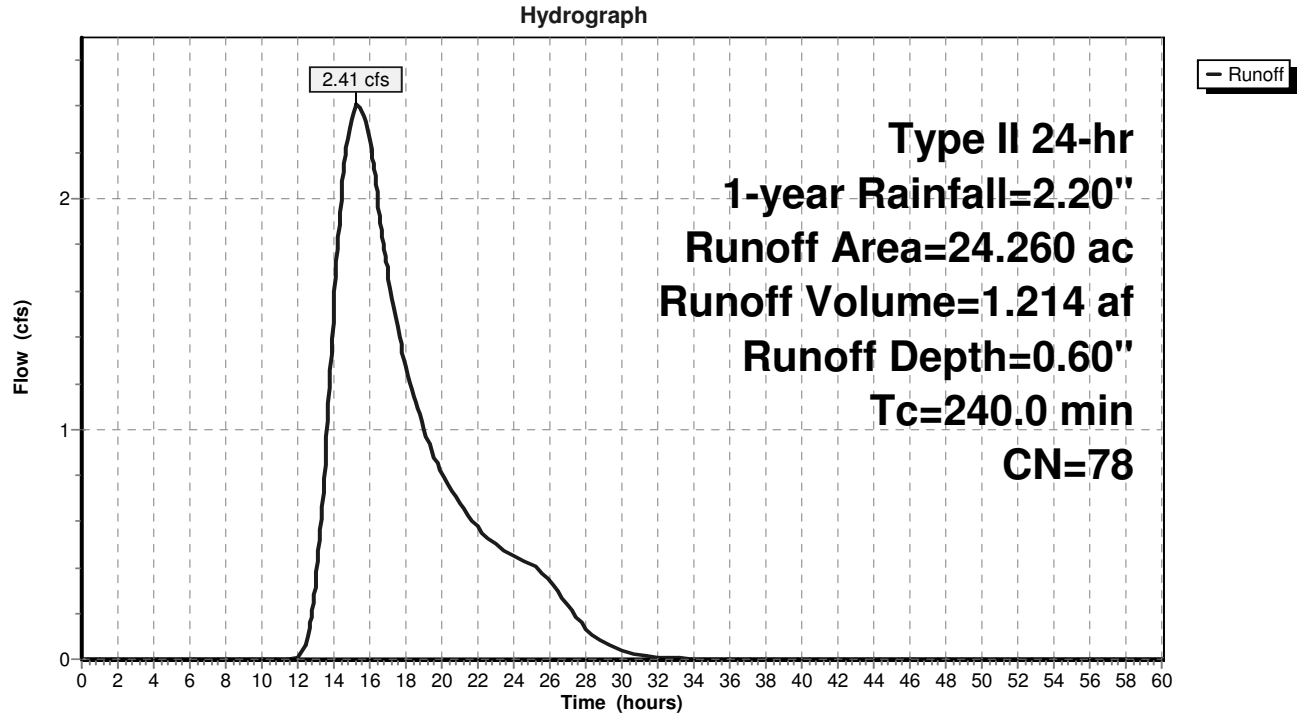
Runoff = 2.41 cfs @ 15.22 hrs, Volume= 1.214 af, Depth= 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.20"

	Area (ac)	CN	Description
*	24.260	78	
	24.260		100.00% Pervious Area

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

Subcatchment 18S: (014)



Summary for Pond 17P: post basin

Inflow Area = 43.810 ac, 3.42% Impervious, Inflow Depth = 0.89" for 1-year event
Inflow = 80.47 cfs @ 11.89 hrs, Volume= 3.244 af
Outflow = 2.19 cfs @ 14.56 hrs, Volume= 3.028 af, Atten= 97%, Lag= 160.1 min
Primary = 2.19 cfs @ 14.56 hrs, Volume= 3.028 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Peak Elev= 936.46' @ 14.56 hrs Surf.Area= 60,310 sf Storage= 82,593 cf

Plug-Flow detention time= 691.6 min calculated for 3.025 af (93% of inflow)
Center-of-Mass det. time= 656.9 min (1,496.2 - 839.3)

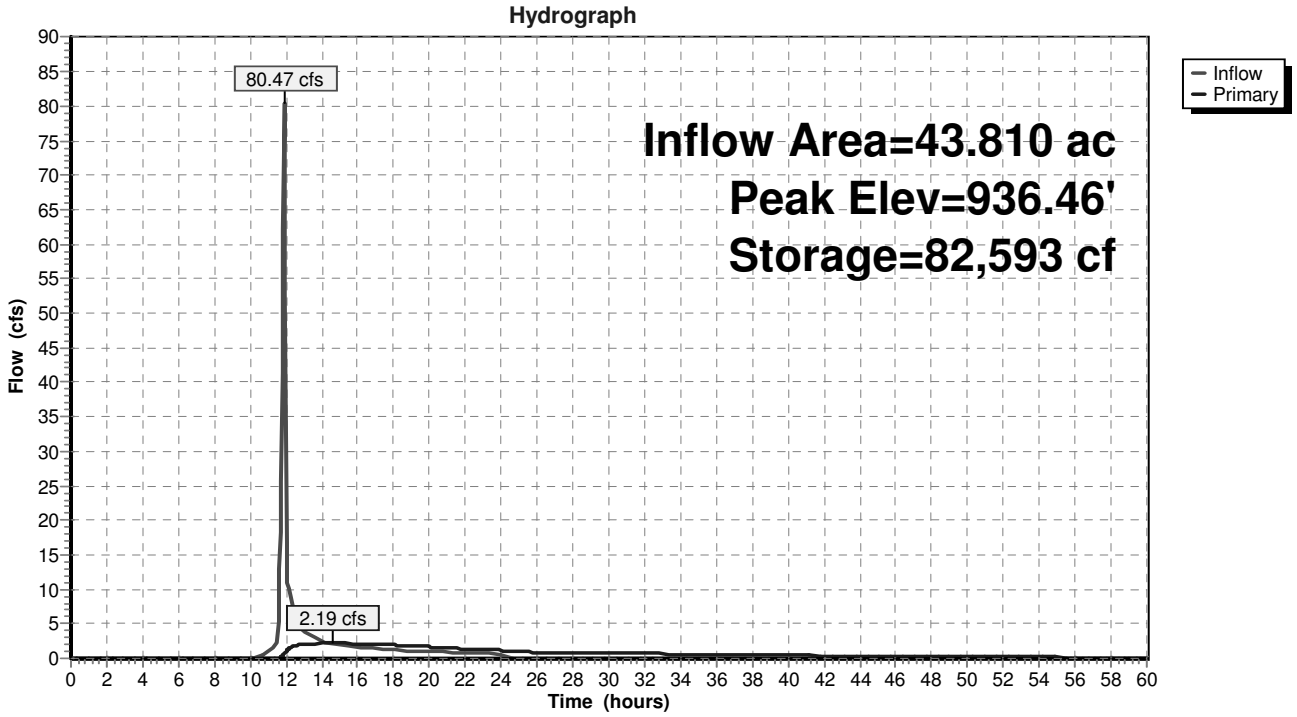
Volume	Invert	Avail.Storage	Storage Description
#1	935.00'	413,937 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
935.00	52,542	0	0
936.00	57,785	55,164	55,164
937.00	63,221	60,503	115,667
938.00	68,806	66,014	181,680
939.00	74,492	71,649	253,329
940.00	80,279	77,386	330,715
941.00	86,166	83,223	413,937

Device	Routing	Invert	Outlet Devices
#1	Device 4	935.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Device 4	936.00'	**4.0" Vert. Orifice/Grate X 5.00** C= 0.600
#3	Device 4	938.50'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	935.00'	**15.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=2.19 cfs @ 14.56 hrs HW=936.46' (Free Discharge)
└**4=Orifice/Grate** (Passes 2.19 cfs of 5.41 cfs potential flow)
  ├**1=Orifice/Grate** (Orifice Controls 1.04 cfs @ 5.31 fps)
  ├**2=Orifice/Grate** (Orifice Controls 1.15 cfs @ 2.63 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 17P: post basin



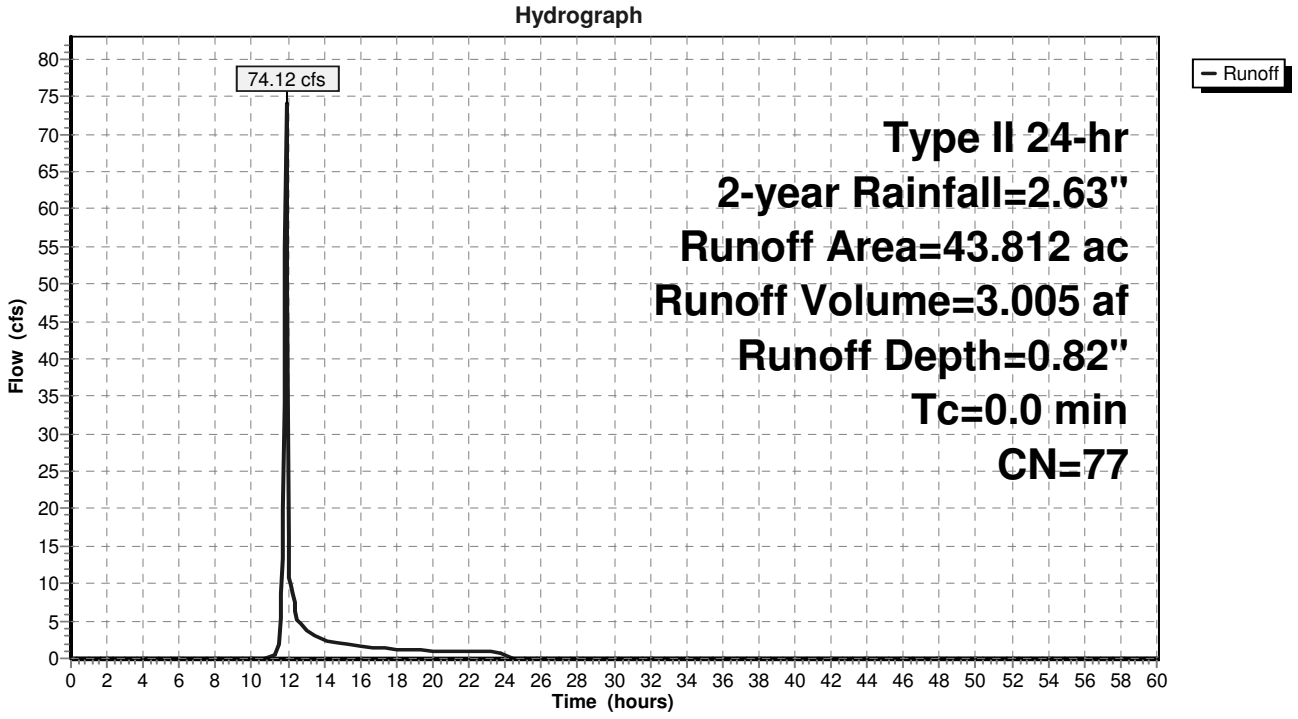
Summary for Subcatchment 14S: Pre

Runoff = 74.12 cfs @ 11.90 hrs, Volume= 3.005 af, Depth= 0.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=2.63"

	Area (ac)	CN	Description
*	32.102	78	
*	8.270	78	
*	3.440	70	
	43.812	77	Weighted Average
	43.812		100.00% Pervious Area

Subcatchment 14S: Pre



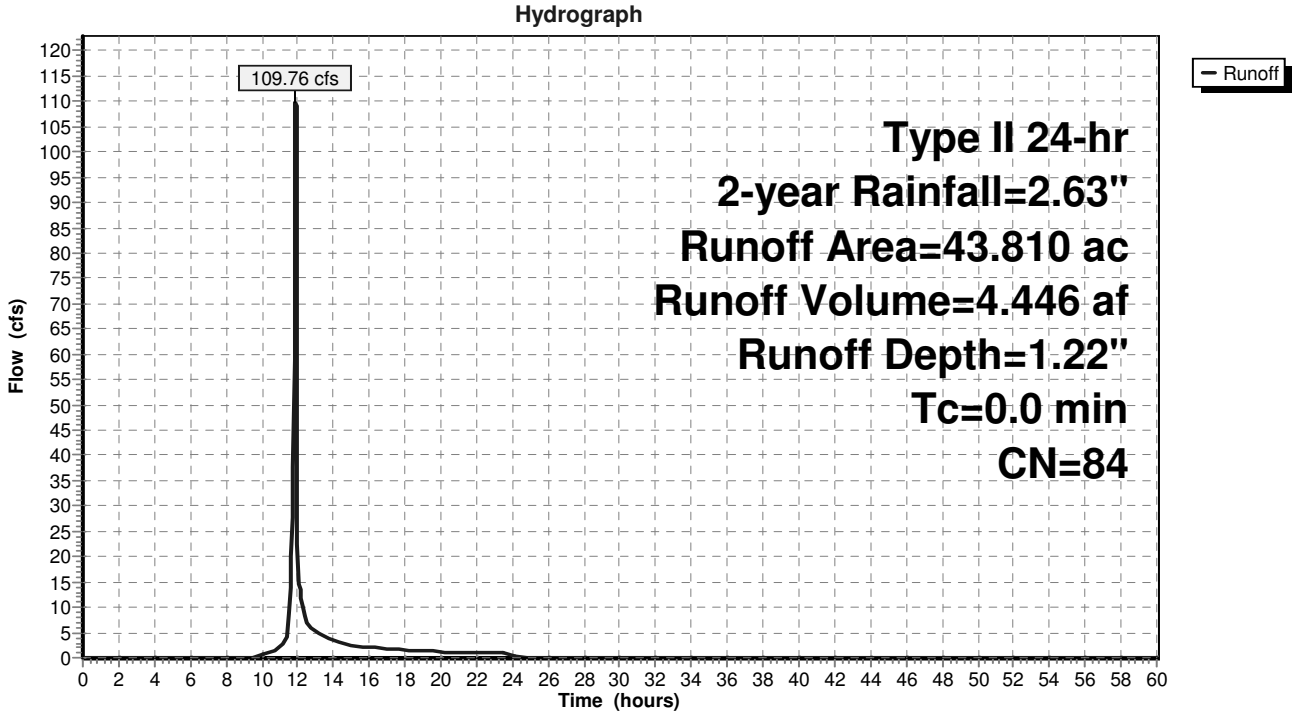
Summary for Subcatchment 15S: Post

Runoff = 109.76 cfs @ 11.89 hrs, Volume= 4.446 af, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=2.63"

	Area (ac)	CN	Description
*	8.410	74	
*	3.200	70	
*	12.060	83	
*	18.640	90	
*	1.500	98	
	43.810	84	Weighted Average
	42.310		96.58% Pervious Area
	1.500		3.42% Impervious Area

Subcatchment 15S: Post



Summary for Subcatchment 18S: (014)

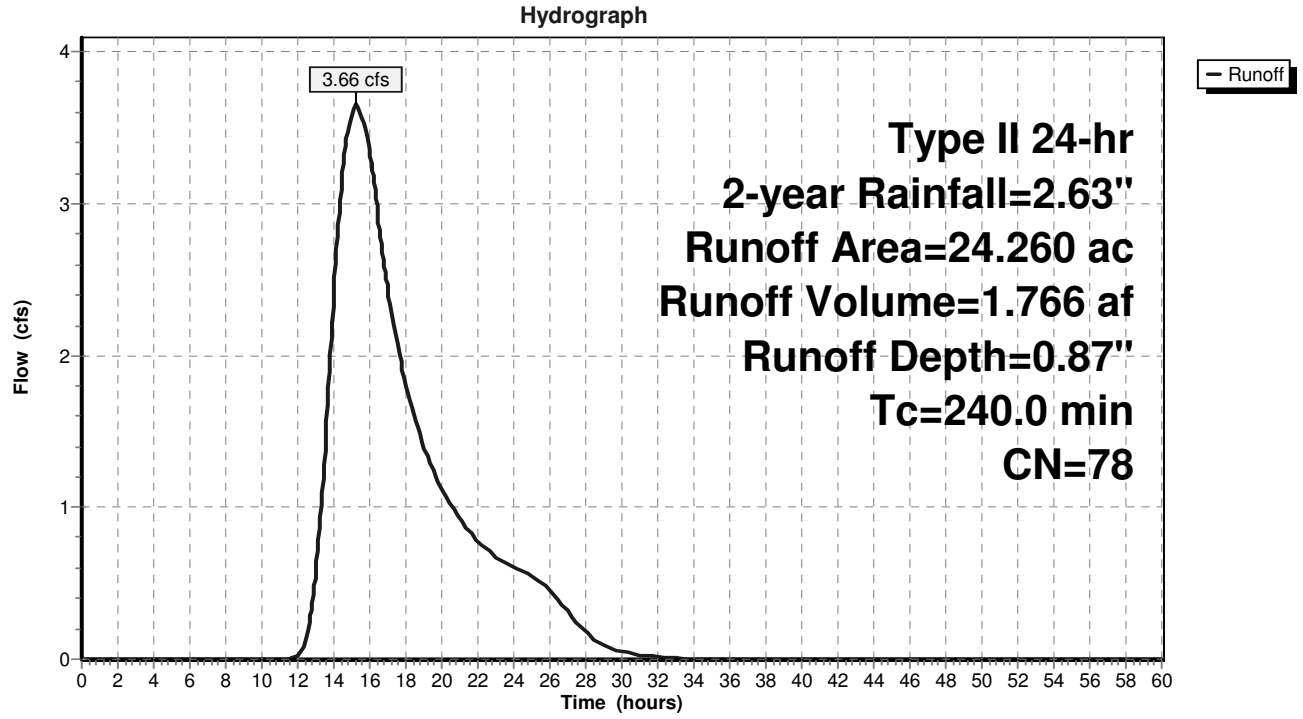
Runoff = 3.66 cfs @ 15.21 hrs, Volume= 1.766 af, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=2.63"

	Area (ac)	CN	Description
*	24.260	78	
	24.260		100.00% Pervious Area

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

Subcatchment 18S: (014)



Summary for Pond 17P: post basin

Inflow Area = 43.810 ac, 3.42% Impervious, Inflow Depth = 1.22" for 2-year event
Inflow = 109.76 cfs @ 11.89 hrs, Volume= 4.446 af
Outflow = 3.12 cfs @ 14.06 hrs, Volume= 4.211 af, Atten= 97%, Lag= 129.9 min
Primary = 3.12 cfs @ 14.06 hrs, Volume= 4.211 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Peak Elev= 936.97' @ 14.06 hrs Surf.Area= 63,036 sf Storage= 113,524 cf

Plug-Flow detention time= 629.9 min calculated for 4.208 af (95% of inflow)
Center-of-Mass det. time= 601.9 min (1,432.0 - 830.1)

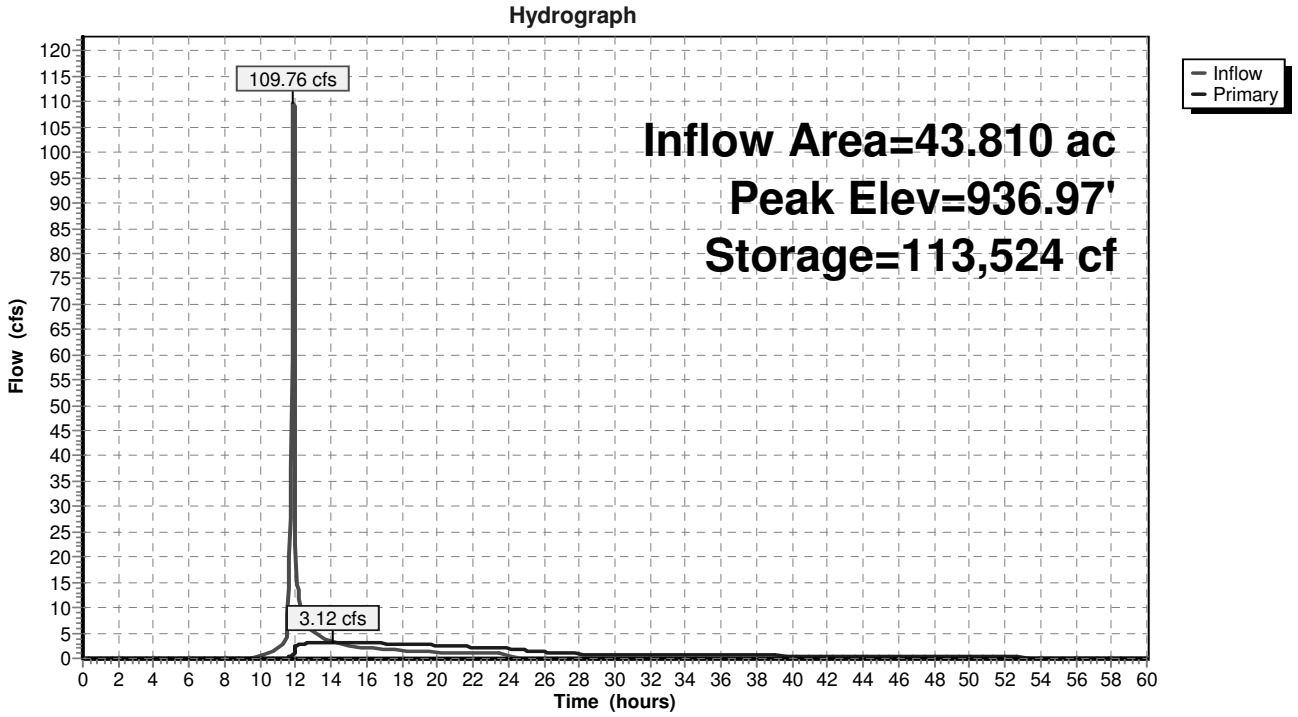
Volume	Invert	Avail.Storage	Storage Description
#1	935.00'	413,937 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
935.00	52,542	0	0
936.00	57,785	55,164	55,164
937.00	63,221	60,503	115,667
938.00	68,806	66,014	181,680
939.00	74,492	71,649	253,329
940.00	80,279	77,386	330,715
941.00	86,166	83,223	413,937

Device	Routing	Invert	Outlet Devices
#1	Device 4	935.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Device 4	936.00'	**4.0" Vert. Orifice/Grate X 5.00** C= 0.600
#3	Device 4	938.50'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	935.00'	**15.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=3.12 cfs @ 14.06 hrs HW=936.97' (Free Discharge)
└**4=Orifice/Grate** (Passes 3.12 cfs of 6.84 cfs potential flow)
  ├**1=Orifice/Grate** (Orifice Controls 1.24 cfs @ 6.31 fps)
  ├**2=Orifice/Grate** (Orifice Controls 1.88 cfs @ 4.30 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 17P: post basin



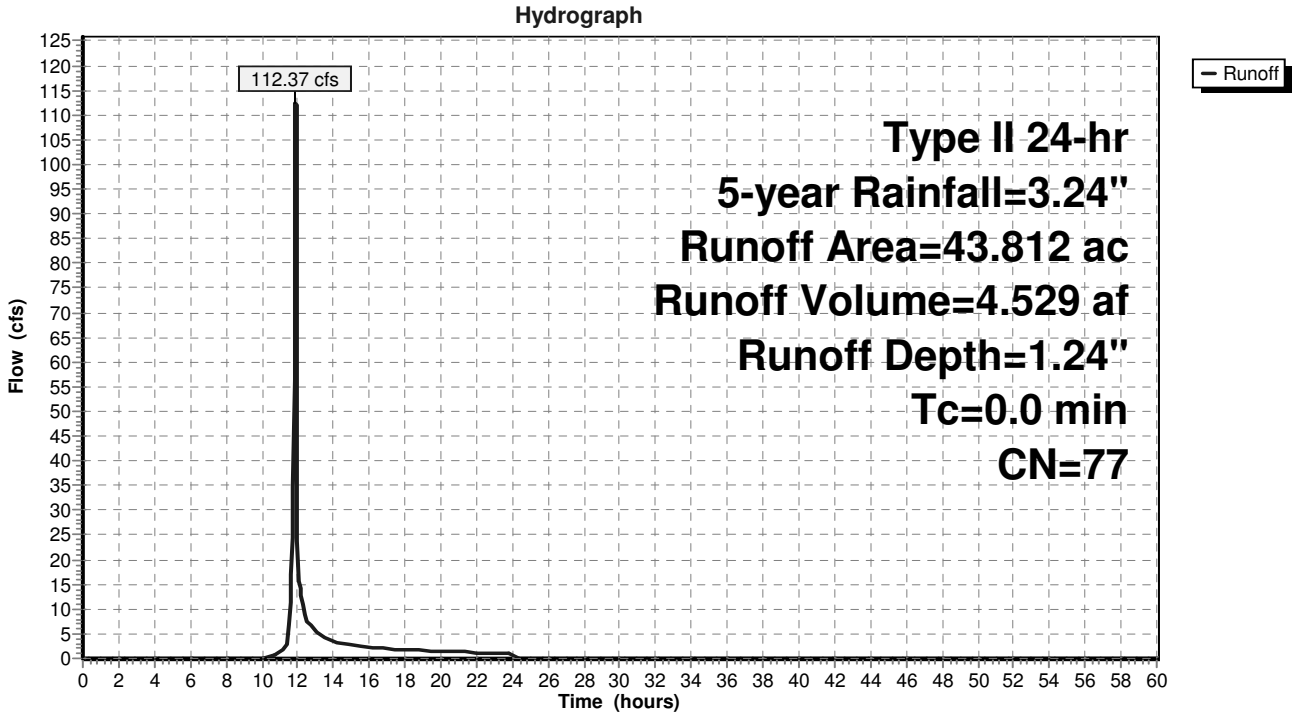
Summary for Subcatchment 14S: Pre

Runoff = 112.37 cfs @ 11.90 hrs, Volume= 4.529 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-year Rainfall=3.24"

	Area (ac)	CN	Description
*	32.102	78	
*	8.270	78	
*	3.440	70	
	43.812	77	Weighted Average
	43.812		100.00% Pervious Area

Subcatchment 14S: Pre



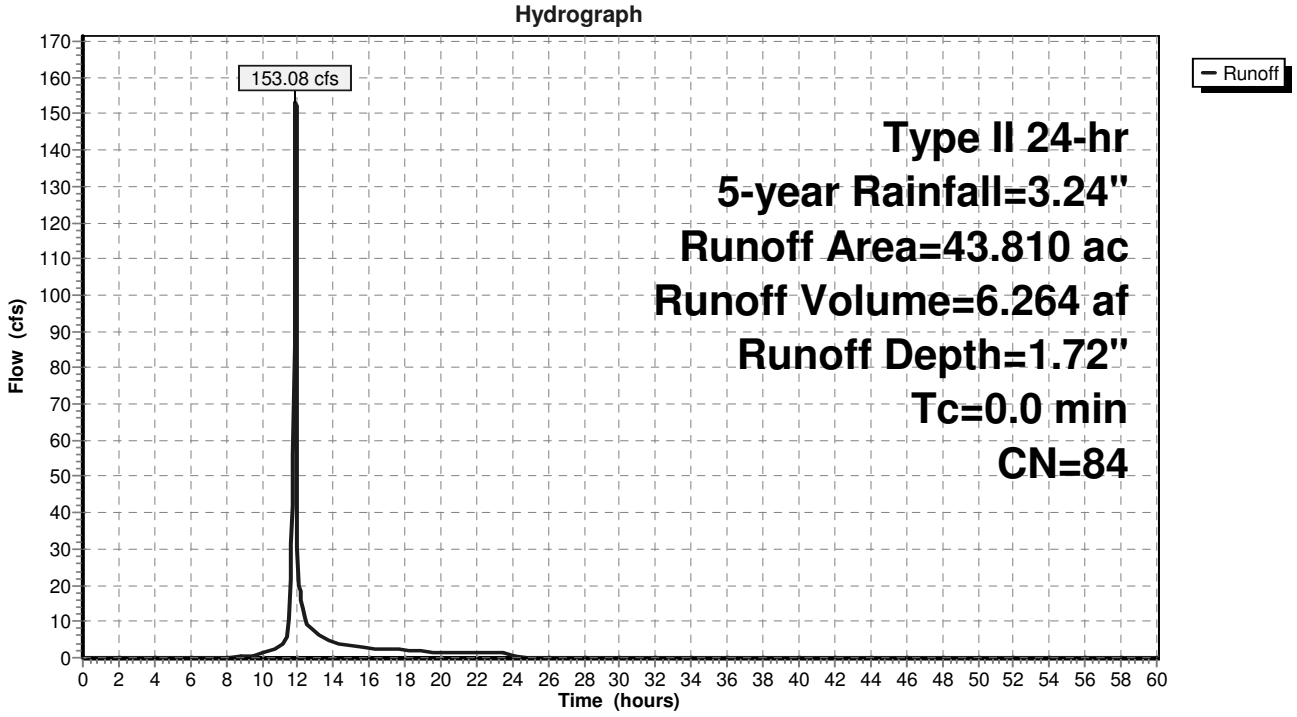
Summary for Subcatchment 15S: Post

Runoff = 153.08 cfs @ 11.89 hrs, Volume= 6.264 af, Depth= 1.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-year Rainfall=3.24"

	Area (ac)	CN	Description
*	8.410	74	
*	3.200	70	
*	12.060	83	
*	18.640	90	
*	1.500	98	
	43.810	84	Weighted Average
	42.310		96.58% Pervious Area
	1.500		3.42% Impervious Area

Subcatchment 15S: Post



Summary for Subcatchment 18S: (014)

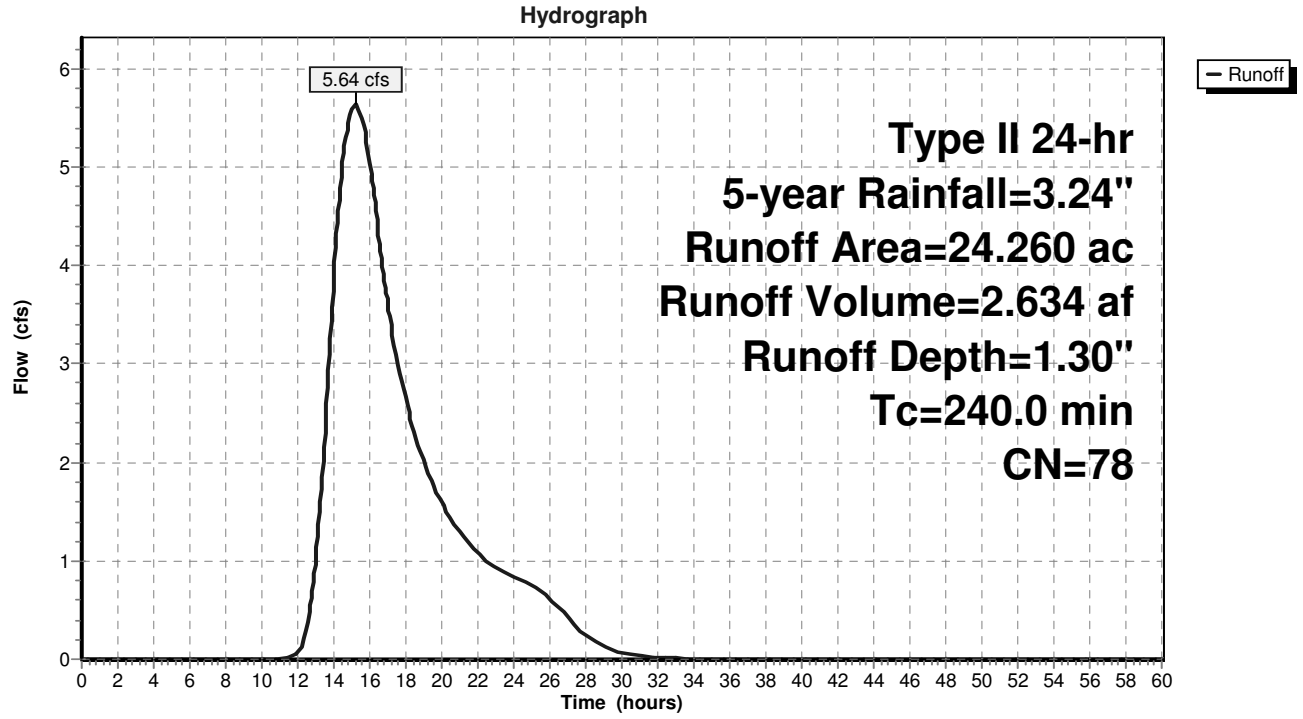
Runoff = 5.64 cfs @ 15.20 hrs, Volume= 2.634 af, Depth= 1.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-year Rainfall=3.24"

	Area (ac)	CN	Description
*	24.260	78	
	24.260		100.00% Pervious Area

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

Subcatchment 18S: (014)



Summary for Pond 17P: post basin

Inflow Area = 43.810 ac, 3.42% Impervious, Inflow Depth = 1.72" for 5-year event
Inflow = 153.08 cfs @ 11.89 hrs, Volume= 6.264 af
Outflow = 4.15 cfs @ 14.07 hrs, Volume= 5.994 af, Atten= 97%, Lag= 130.4 min
Primary = 4.15 cfs @ 14.07 hrs, Volume= 5.994 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Peak Elev= 937.76' @ 14.07 hrs Surf.Area= 67,464 sf Storage= 165,310 cf

Plug-Flow detention time= 624.8 min calculated for 5.989 af (96% of inflow)
Center-of-Mass det. time= 601.5 min (1,421.8 - 820.3)

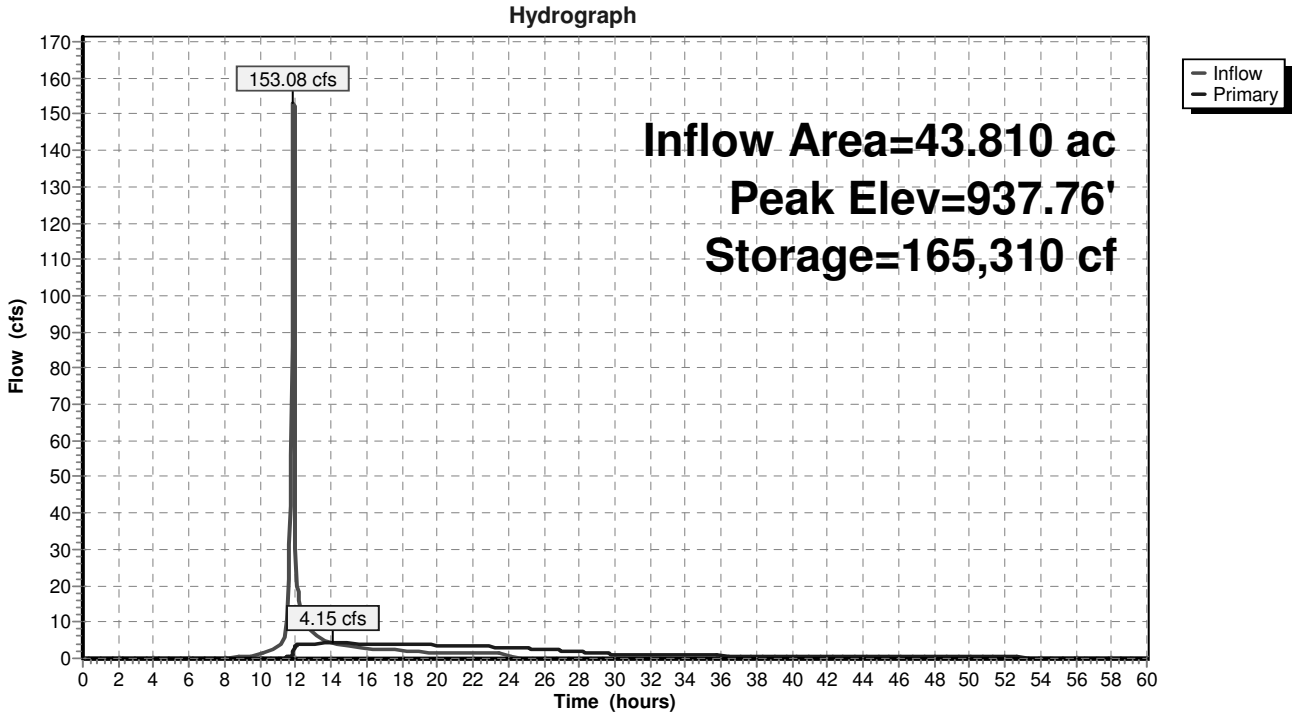
Volume	Invert	Avail.Storage	Storage Description
#1	935.00'	413,937 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
935.00	52,542	0	0
936.00	57,785	55,164	55,164
937.00	63,221	60,503	115,667
938.00	68,806	66,014	181,680
939.00	74,492	71,649	253,329
940.00	80,279	77,386	330,715
941.00	86,166	83,223	413,937

Device	Routing	Invert	Outlet Devices
#1	Device 4	935.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Device 4	936.00'	**4.0" Vert. Orifice/Grate X 5.00** C= 0.600
#3	Device 4	938.50'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	935.00'	**15.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=4.15 cfs @ 14.07 hrs HW=937.76' (Free Discharge)
└**4=Orifice/Grate** (Passes 4.15 cfs of 8.63 cfs potential flow)
  ├**1=Orifice/Grate** (Orifice Controls 1.50 cfs @ 7.63 fps)
  ├**2=Orifice/Grate** (Orifice Controls 2.65 cfs @ 6.08 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 17P: post basin



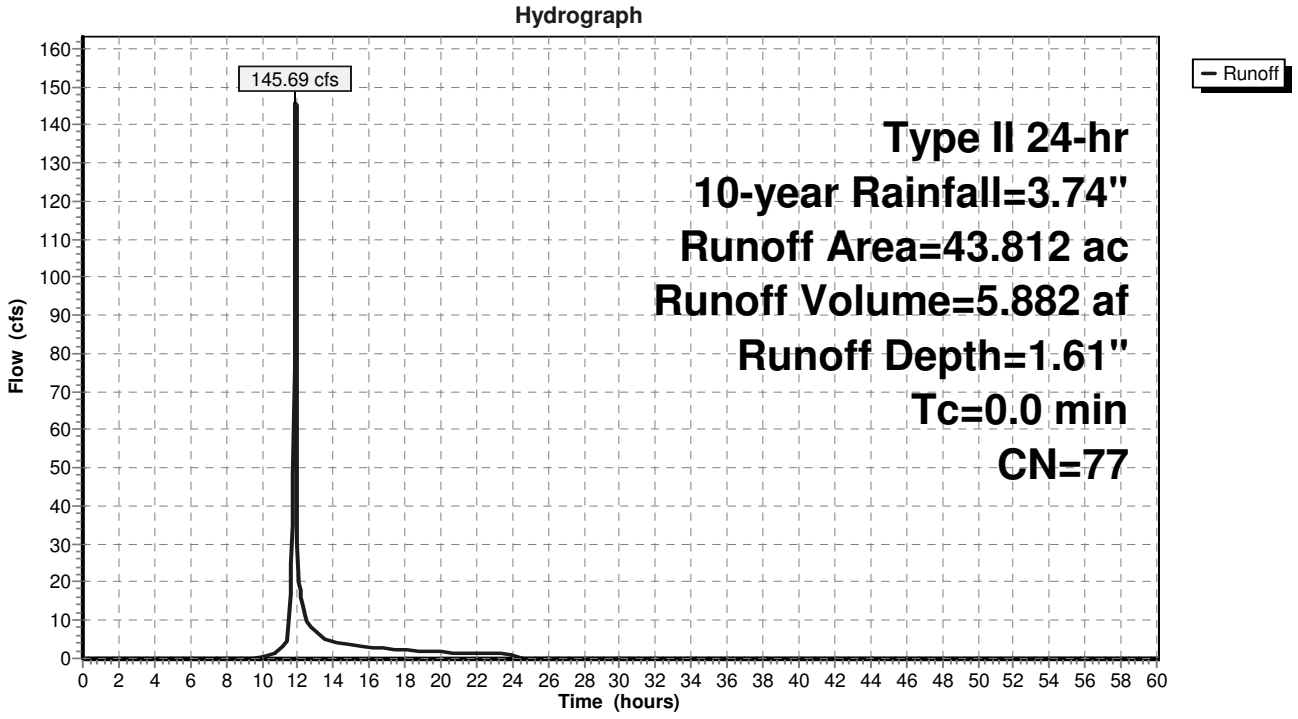
Summary for Subcatchment 14S: Pre

Runoff = 145.69 cfs @ 11.89 hrs, Volume= 5.882 af, Depth= 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=3.74"

	Area (ac)	CN	Description
*	32.102	78	
*	8.270	78	
*	3.440	70	
	43.812	77	Weighted Average
	43.812		100.00% Pervious Area

Subcatchment 14S: Pre



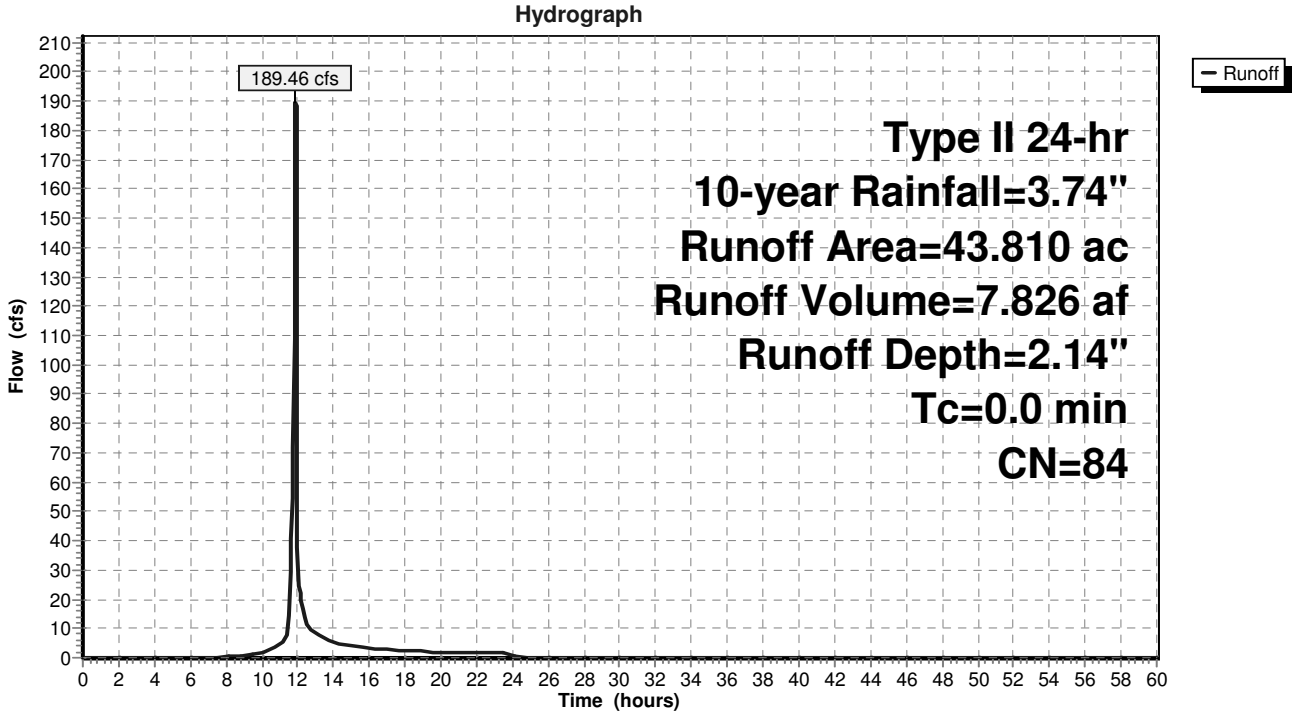
Summary for Subcatchment 15S: Post

Runoff = 189.46 cfs @ 11.89 hrs, Volume= 7.826 af, Depth= 2.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=3.74"

	Area (ac)	CN	Description
*	8.410	74	
*	3.200	70	
*	12.060	83	
*	18.640	90	
*	1.500	98	
	43.810	84	Weighted Average
	42.310		96.58% Pervious Area
	1.500		3.42% Impervious Area

Subcatchment 15S: Post



Summary for Subcatchment 18S: (014)

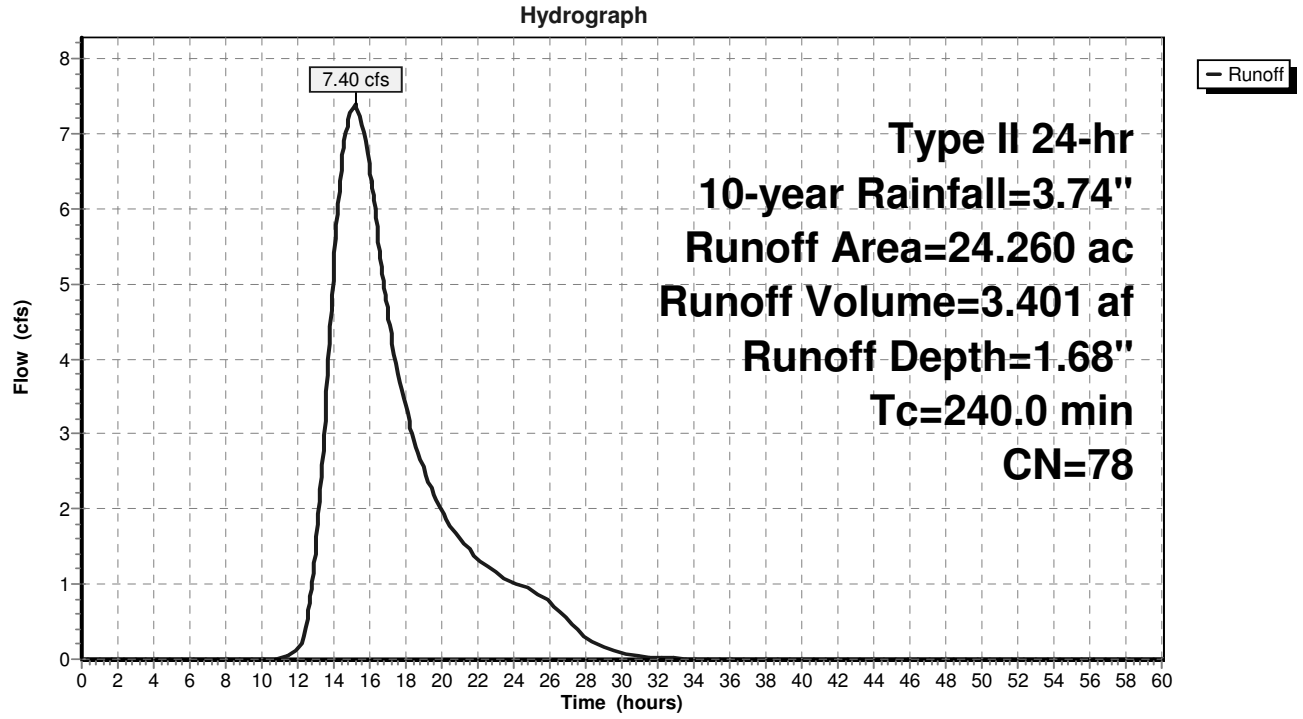
Runoff = 7.40 cfs @ 15.19 hrs, Volume= 3.401 af, Depth= 1.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=3.74"

	Area (ac)	CN	Description
*	24.260	78	
	24.260		100.00% Pervious Area

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

Subcatchment 18S: (014)



Summary for Pond 17P: post basin

Inflow Area = 43.810 ac, 3.42% Impervious, Inflow Depth = 2.14" for 10-year event
Inflow = 189.46 cfs @ 11.89 hrs, Volume= 7.826 af
Outflow = 4.85 cfs @ 14.24 hrs, Volume= 7.519 af, Atten= 97%, Lag= 140.8 min
Primary = 4.85 cfs @ 14.24 hrs, Volume= 7.519 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Peak Elev= 938.43' @ 14.24 hrs Surf.Area= 71,252 sf Storage= 211,805 cf

Plug-Flow detention time= 646.2 min calculated for 7.519 af (96% of inflow)
Center-of-Mass det. time= 623.5 min (1,437.4 - 813.9)

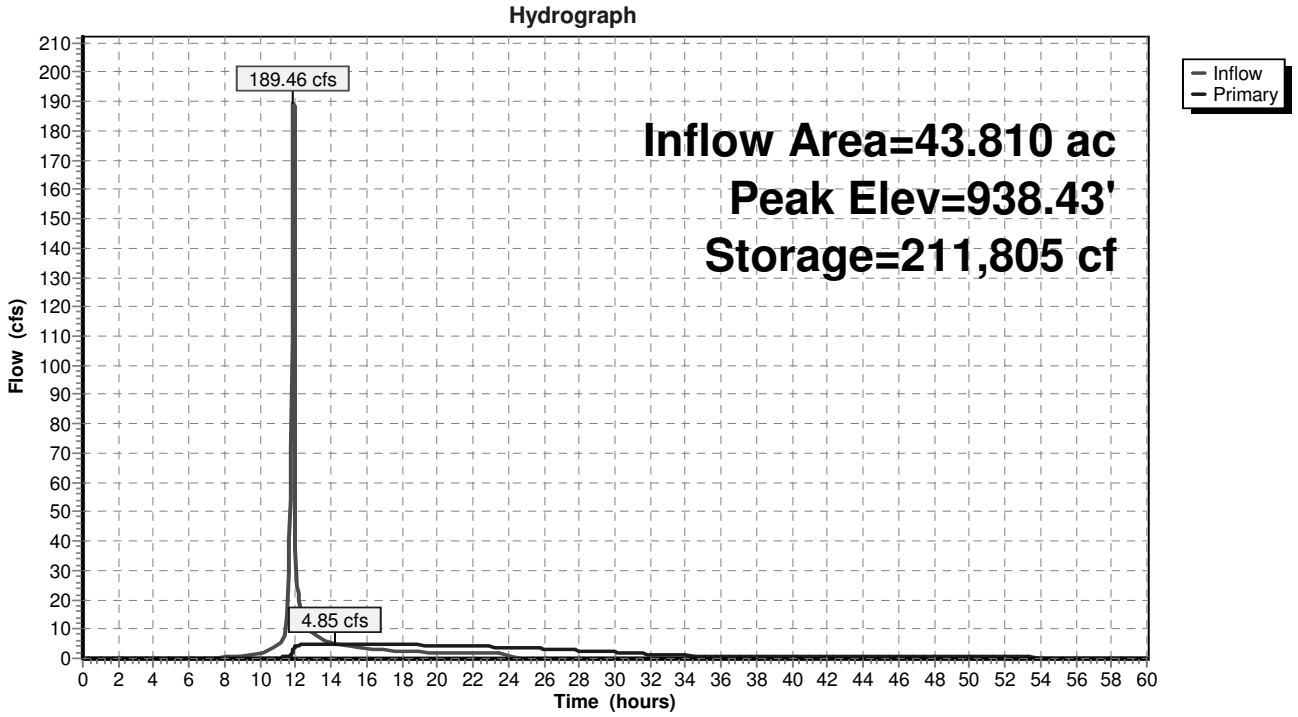
Volume	Invert	Avail.Storage	Storage Description
#1	935.00'	413,937 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
935.00	52,542	0	0
936.00	57,785	55,164	55,164
937.00	63,221	60,503	115,667
938.00	68,806	66,014	181,680
939.00	74,492	71,649	253,329
940.00	80,279	77,386	330,715
941.00	86,166	83,223	413,937

Device	Routing	Invert	Outlet Devices
#1	Device 4	935.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Device 4	936.00'	**4.0" Vert. Orifice/Grate X 5.00** C= 0.600
#3	Device 4	938.50'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	935.00'	**15.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=4.85 cfs @ 14.24 hrs HW=938.43' (Free Discharge)
└**4=Orifice/Grate** (Passes 4.85 cfs of 9.90 cfs potential flow)
  ├**1=Orifice/Grate** (Orifice Controls 1.69 cfs @ 8.59 fps)
  ├**2=Orifice/Grate** (Orifice Controls 3.16 cfs @ 7.24 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 17P: post basin



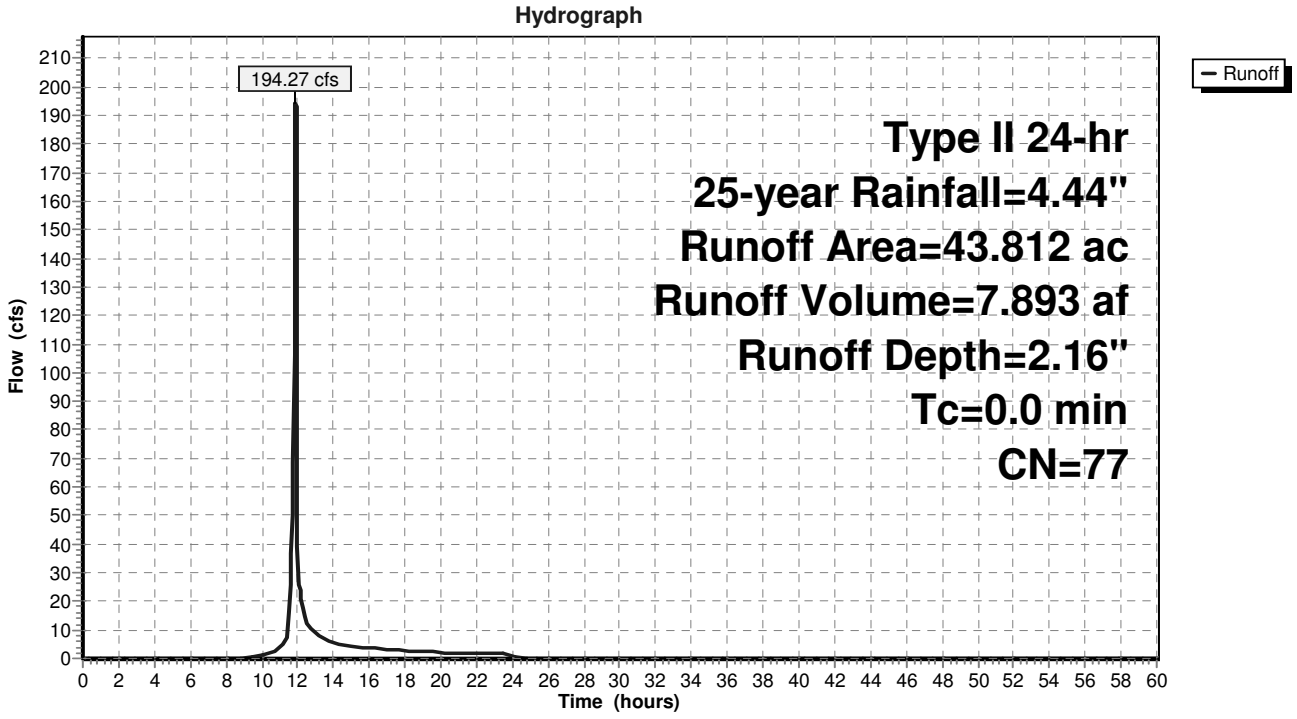
Summary for Subcatchment 14S: Pre

Runoff = 194.27 cfs @ 11.89 hrs, Volume= 7.893 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-year Rainfall=4.44"

	Area (ac)	CN	Description
*	32.102	78	
*	8.270	78	
*	3.440	70	
	43.812	77	Weighted Average
	43.812		100.00% Pervious Area

Subcatchment 14S: Pre



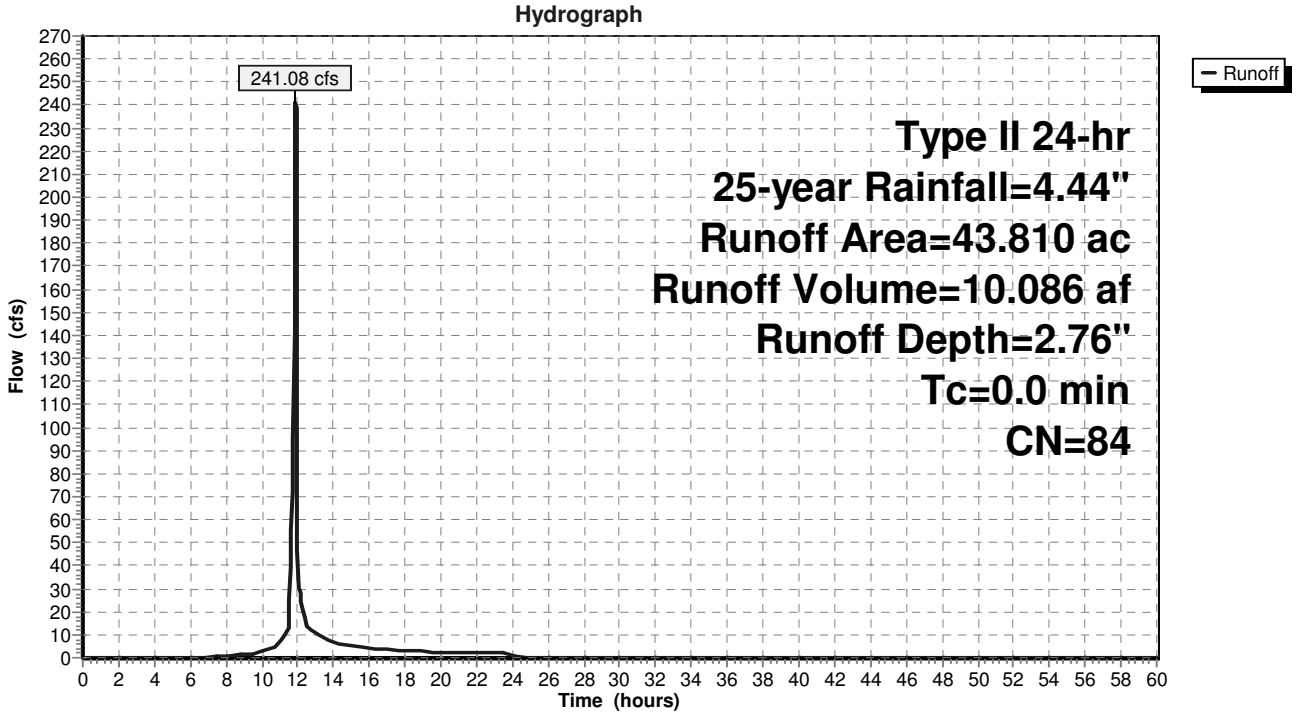
Summary for Subcatchment 15S: Post

Runoff = 241.08 cfs @ 11.89 hrs, Volume= 10.086 af, Depth= 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-year Rainfall=4.44"

	Area (ac)	CN	Description
*	8.410	74	
*	3.200	70	
*	12.060	83	
*	18.640	90	
*	1.500	98	
	43.810	84	Weighted Average
	42.310		96.58% Pervious Area
	1.500		3.42% Impervious Area

Subcatchment 15S: Post



Summary for Subcatchment 18S: (014)

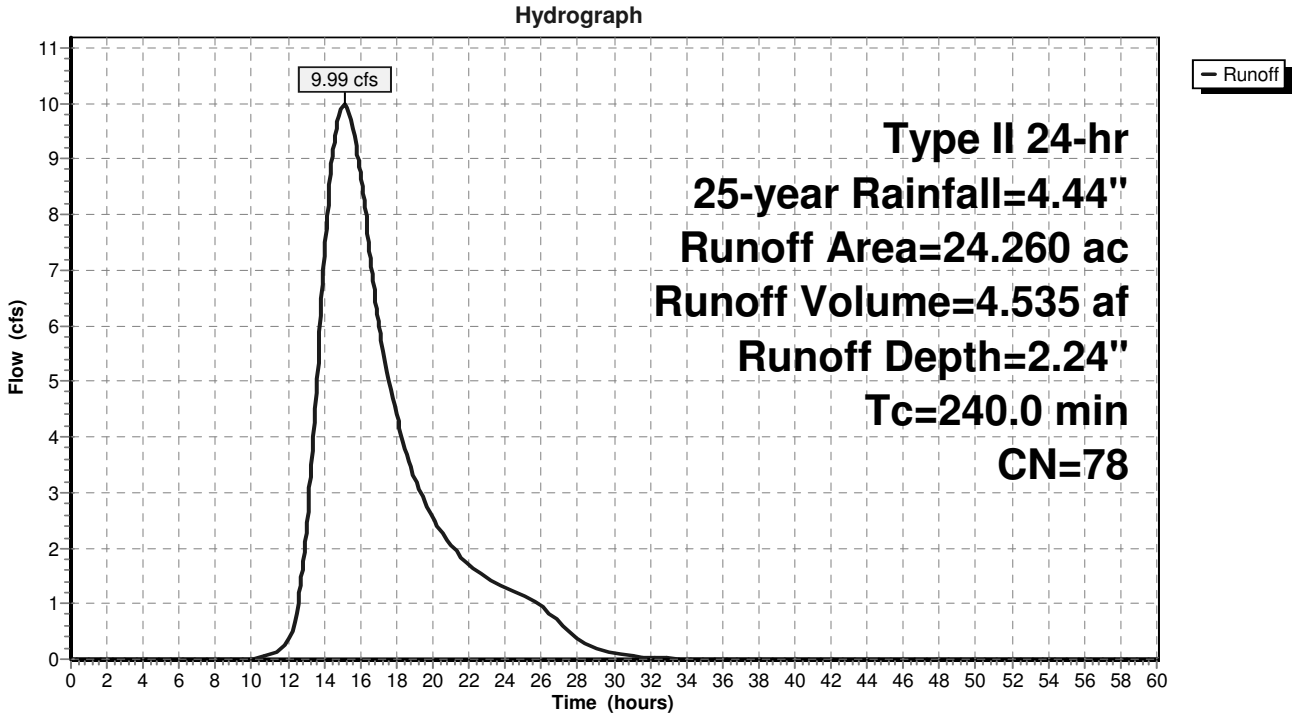
Runoff = 9.99 cfs @ 15.19 hrs, Volume= 4.535 af, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-year Rainfall=4.44"

	Area (ac)	CN	Description
*	24.260	78	
	24.260		100.00% Pervious Area

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

Subcatchment 18S: (014)



Summary for Pond 17P: post basin

Inflow Area = 43.810 ac, 3.42% Impervious, Inflow Depth = 2.76" for 25-year event
Inflow = 241.08 cfs @ 11.89 hrs, Volume= 10.086 af
Outflow = 10.87 cfs @ 12.92 hrs, Volume= 9.757 af, Atten= 95%, Lag= 61.7 min
Primary = 10.87 cfs @ 12.92 hrs, Volume= 9.757 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Peak Elev= 939.01' @ 12.92 hrs Surf.Area= 74,555 sf Storage= 254,145 cf

Plug-Flow detention time= 568.4 min calculated for 9.749 af (97% of inflow)
Center-of-Mass det. time= 550.6 min (1,357.3 - 806.7)

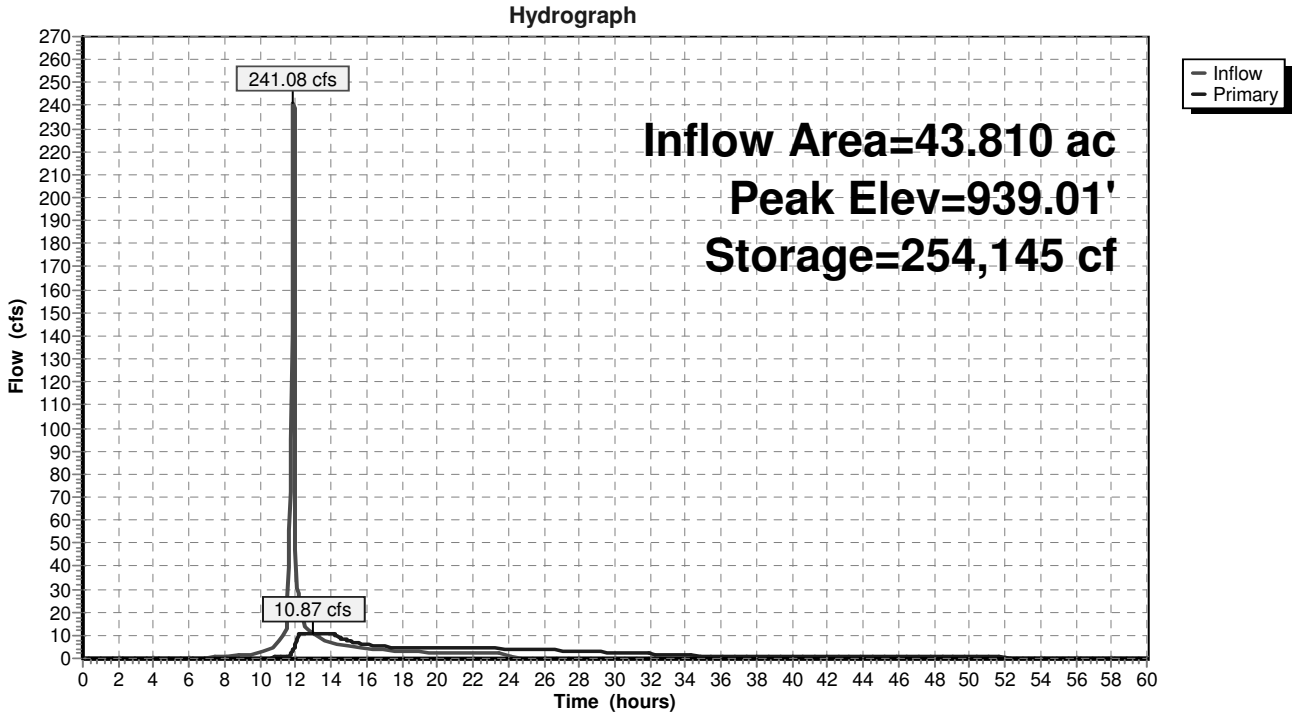
Volume	Invert	Avail.Storage	Storage Description
#1	935.00'	413,937 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
935.00	52,542	0	0
936.00	57,785	55,164	55,164
937.00	63,221	60,503	115,667
938.00	68,806	66,014	181,680
939.00	74,492	71,649	253,329
940.00	80,279	77,386	330,715
941.00	86,166	83,223	413,937

Device	Routing	Invert	Outlet Devices
#1	Device 4	935.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Device 4	936.00'	**4.0" Vert. Orifice/Grate X 5.00** C= 0.600
#3	Device 4	938.50'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	935.00'	**15.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=10.87 cfs @ 12.92 hrs HW=939.01' (Free Discharge)
└**4=Orifice/Grate** (Orifice Controls 10.87 cfs @ 8.86 fps)
  ├**1=Orifice/Grate** (Passes < 1.83 cfs potential flow)
  ├**2=Orifice/Grate** (Passes < 3.54 cfs potential flow)
  └**3=Orifice/Grate** (Passes < 9.55 cfs potential flow)

Pond 17P: post basin



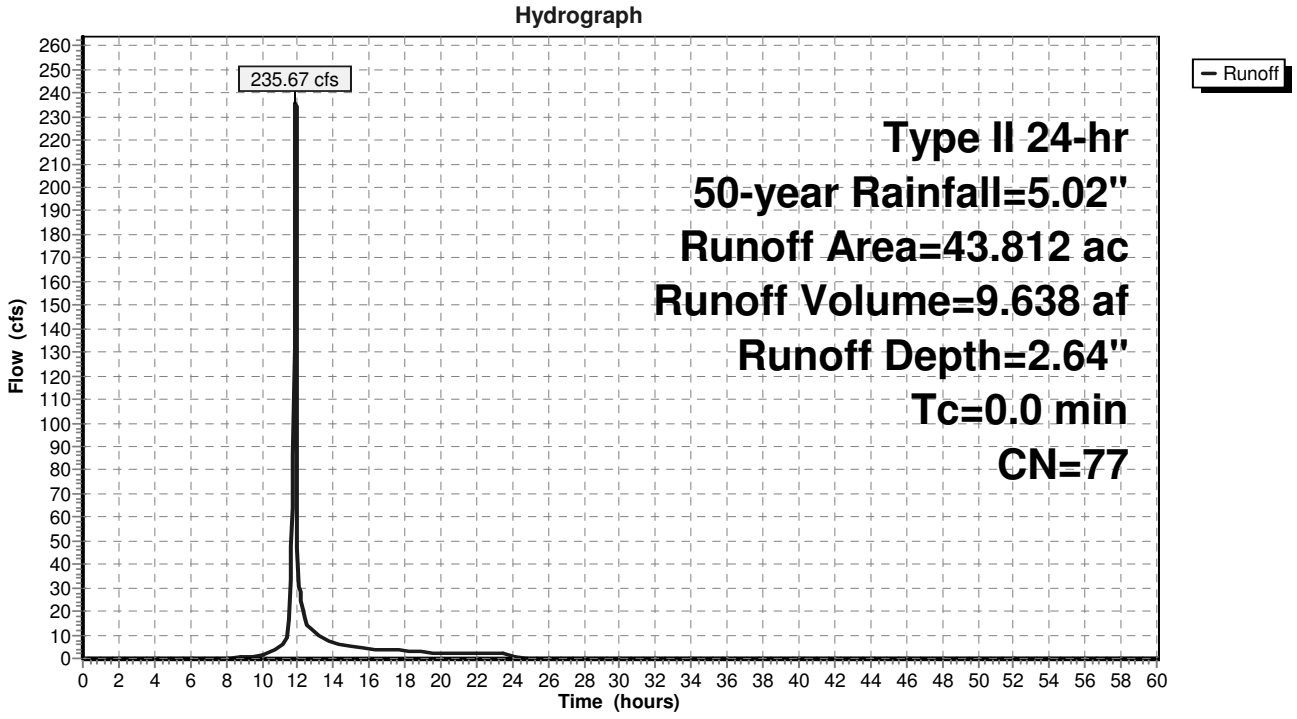
Summary for Subcatchment 14S: Pre

Runoff = 235.67 cfs @ 11.89 hrs, Volume= 9.638 af, Depth= 2.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-year Rainfall=5.02"

	Area (ac)	CN	Description
*	32.102	78	
*	8.270	78	
*	3.440	70	
	43.812	77	Weighted Average
	43.812		100.00% Pervious Area

Subcatchment 14S: Pre



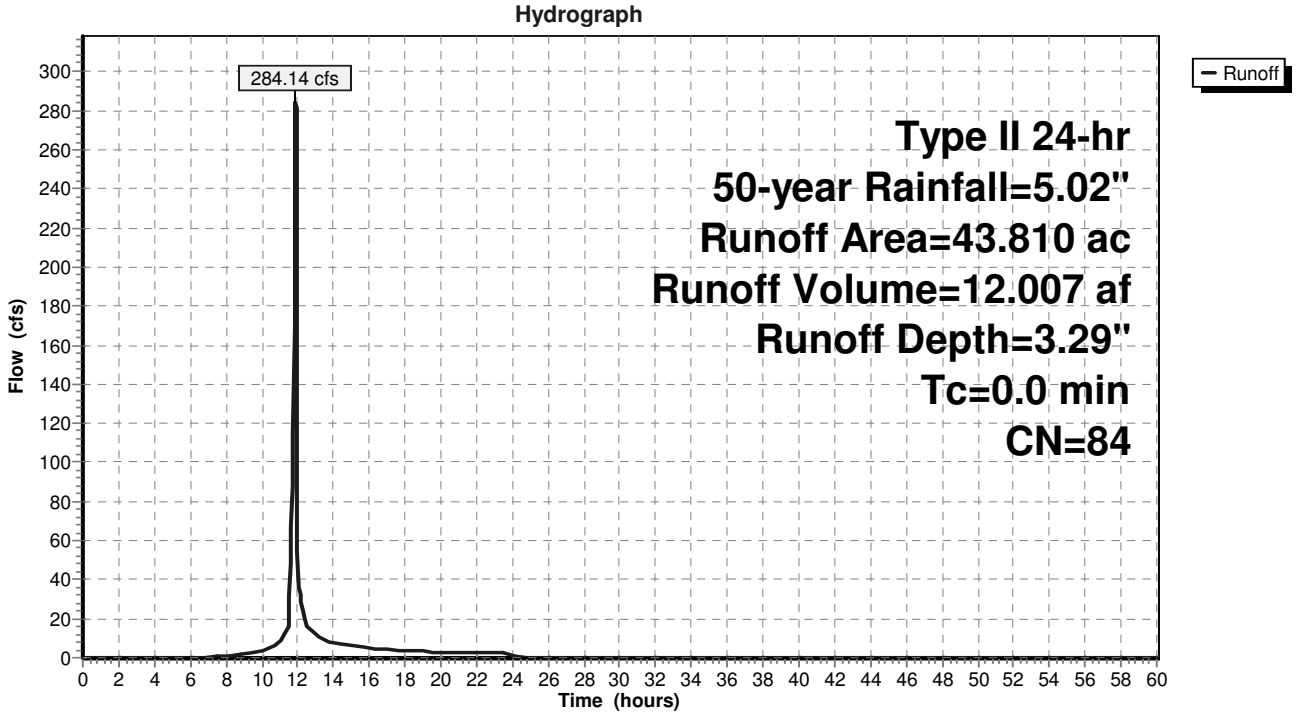
Summary for Subcatchment 15S: Post

Runoff = 284.14 cfs @ 11.89 hrs, Volume= 12.007 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-year Rainfall=5.02"

	Area (ac)	CN	Description
*	8.410	74	
*	3.200	70	
*	12.060	83	
*	18.640	90	
*	1.500	98	
	43.810	84	Weighted Average
	42.310		96.58% Pervious Area
	1.500		3.42% Impervious Area

Subcatchment 15S: Post



Summary for Subcatchment 18S: (014)

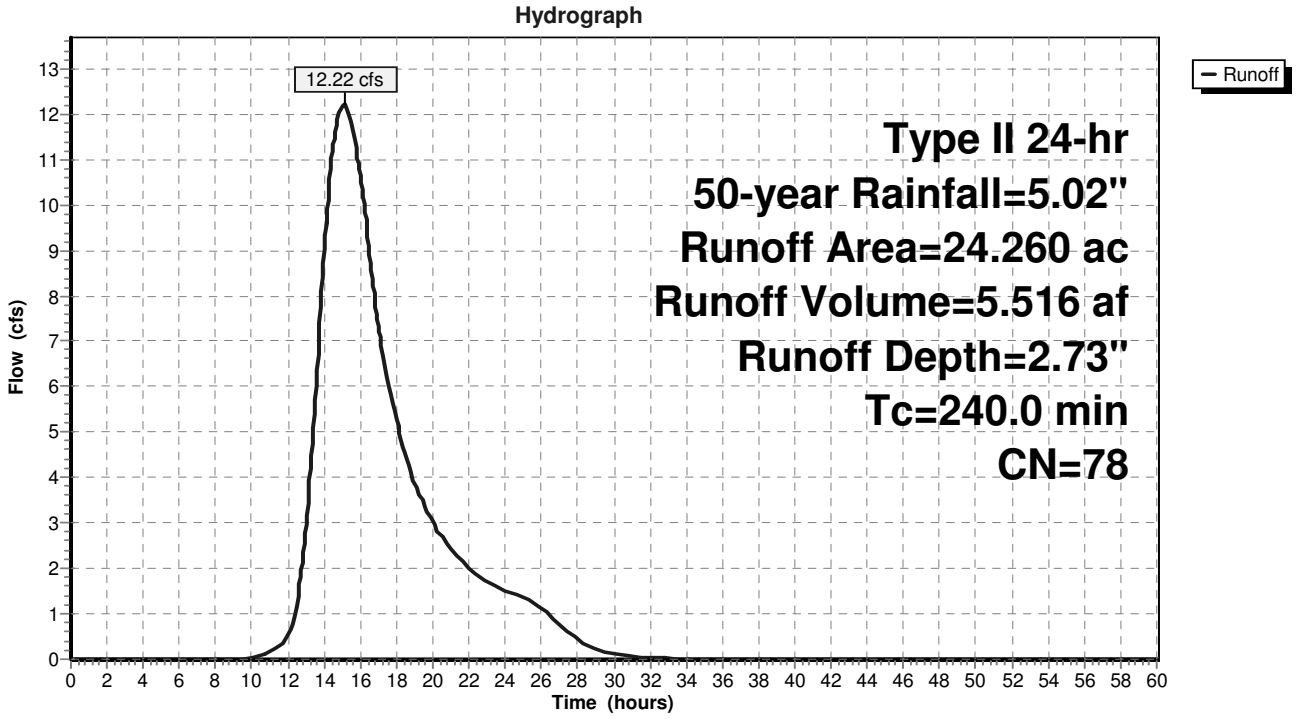
Runoff = 12.22 cfs @ 15.18 hrs, Volume= 5.516 af, Depth= 2.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-year Rainfall=5.02"

	Area (ac)	CN	Description
*	24.260	78	
	24.260		100.00% Pervious Area

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

Subcatchment 18S: (014)



Summary for Pond 17P: post basin

Inflow Area = 43.810 ac, 3.42% Impervious, Inflow Depth = 3.29" for 50-year event
Inflow = 284.14 cfs @ 11.89 hrs, Volume= 12.007 af
Outflow = 11.92 cfs @ 13.00 hrs, Volume= 11.663 af, Atten= 96%, Lag= 66.5 min
Primary = 11.92 cfs @ 13.00 hrs, Volume= 11.663 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Peak Elev= 939.70' @ 13.00 hrs Surf.Area= 78,530 sf Storage= 306,722 cf

Plug-Flow detention time= 532.3 min calculated for 11.663 af (97% of inflow)
Center-of-Mass det. time= 515.1 min (1,316.9 - 801.7)

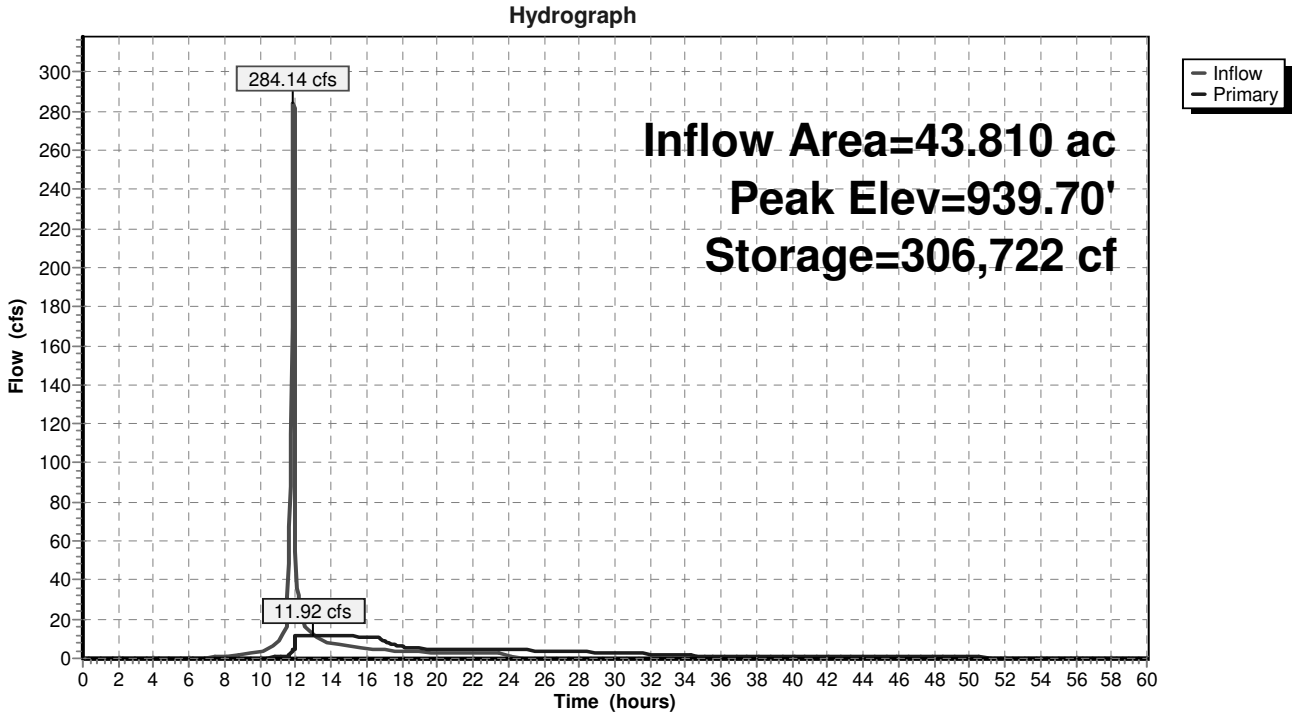
Volume	Invert	Avail.Storage	Storage Description
#1	935.00'	413,937 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
935.00	52,542	0	0
936.00	57,785	55,164	55,164
937.00	63,221	60,503	115,667
938.00	68,806	66,014	181,680
939.00	74,492	71,649	253,329
940.00	80,279	77,386	330,715
941.00	86,166	83,223	413,937

Device	Routing	Invert	Outlet Devices
#1	Device 4	935.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Device 4	936.00'	**4.0" Vert. Orifice/Grate X 5.00** C= 0.600
#3	Device 4	938.50'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	935.00'	**15.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=11.92 cfs @ 13.00 hrs HW=939.70' (Free Discharge)
└**4=Orifice/Grate** (Orifice Controls 11.92 cfs @ 9.72 fps)
  ├**1=Orifice/Grate** (Passes < 1.99 cfs potential flow)
  ├**2=Orifice/Grate** (Passes < 3.95 cfs potential flow)
  └**3=Orifice/Grate** (Passes < 21.08 cfs potential flow)

Pond 17P: post basin



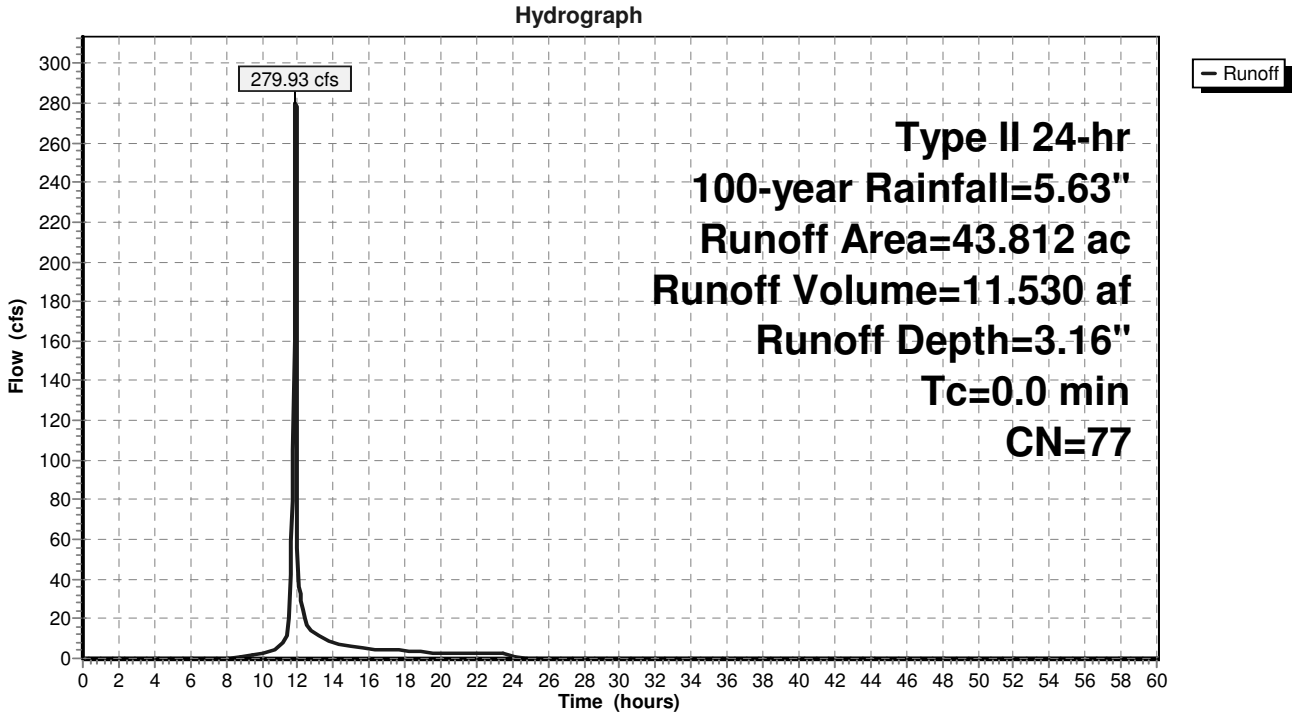
Summary for Subcatchment 14S: Pre

Runoff = 279.93 cfs @ 11.89 hrs, Volume= 11.530 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=5.63"

	Area (ac)	CN	Description
*	32.102	78	
*	8.270	78	
*	3.440	70	
	43.812	77	Weighted Average
	43.812		100.00% Pervious Area

Subcatchment 14S: Pre



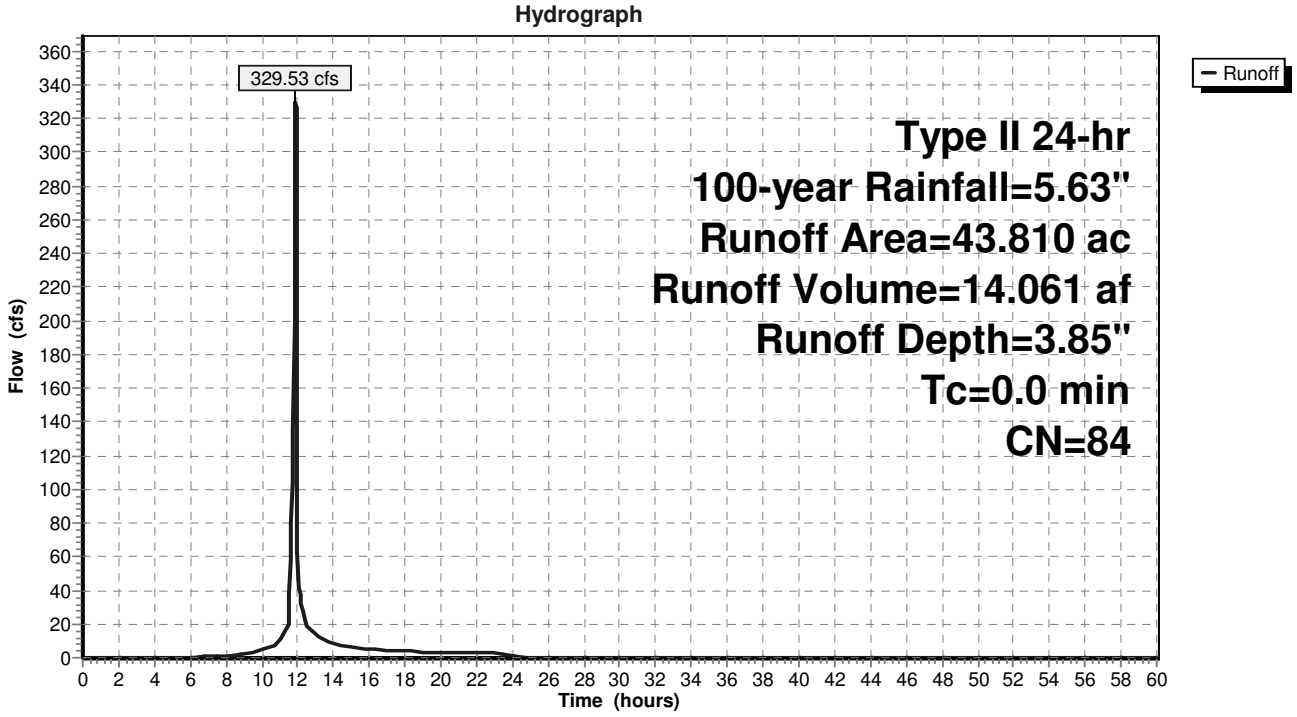
Summary for Subcatchment 15S: Post

Runoff = 329.53 cfs @ 11.89 hrs, Volume= 14.061 af, Depth= 3.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=5.63"

	Area (ac)	CN	Description
*	8.410	74	
*	3.200	70	
*	12.060	83	
*	18.640	90	
*	1.500	98	
	43.810	84	Weighted Average
	42.310		96.58% Pervious Area
	1.500		3.42% Impervious Area

Subcatchment 15S: Post



Summary for Subcatchment 18S: (014)

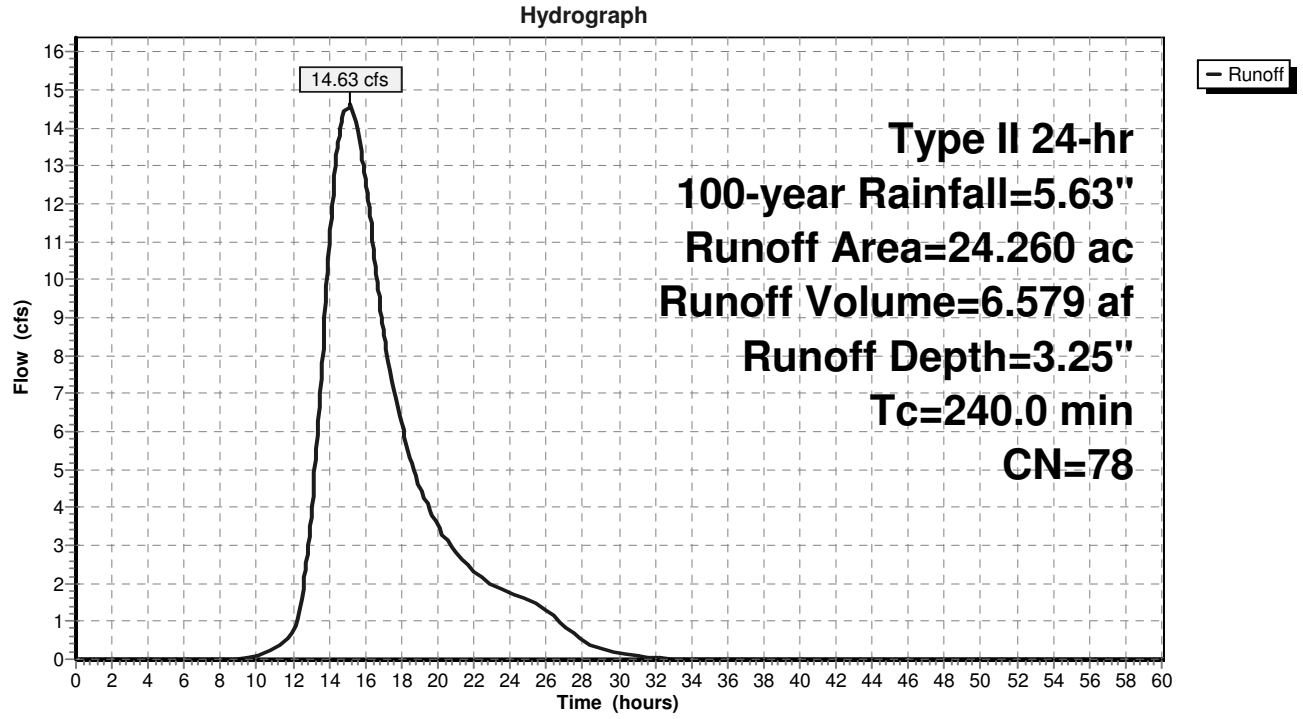
Runoff = 14.63 cfs @ 15.18 hrs, Volume= 6.579 af, Depth= 3.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=5.63"

	Area (ac)	CN	Description
*	24.260	78	
	24.260		100.00% Pervious Area

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

Subcatchment 18S: (014)



Summary for Pond 17P: post basin

Inflow Area = 43.810 ac, 3.42% Impervious, Inflow Depth = 3.85" for 100-year event
Inflow = 329.53 cfs @ 11.89 hrs, Volume= 14.061 af
Outflow = 12.95 cfs @ 13.10 hrs, Volume= 13.700 af, Atten= 96%, Lag= 72.8 min
Primary = 12.95 cfs @ 13.10 hrs, Volume= 13.700 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Peak Elev= 940.43' @ 13.10 hrs Surf.Area= 82,801 sf Storage= 365,645 cf

Plug-Flow detention time= 515.0 min calculated for 13.689 af (97% of inflow)
Center-of-Mass det. time= 500.9 min (1,298.1 - 797.2)

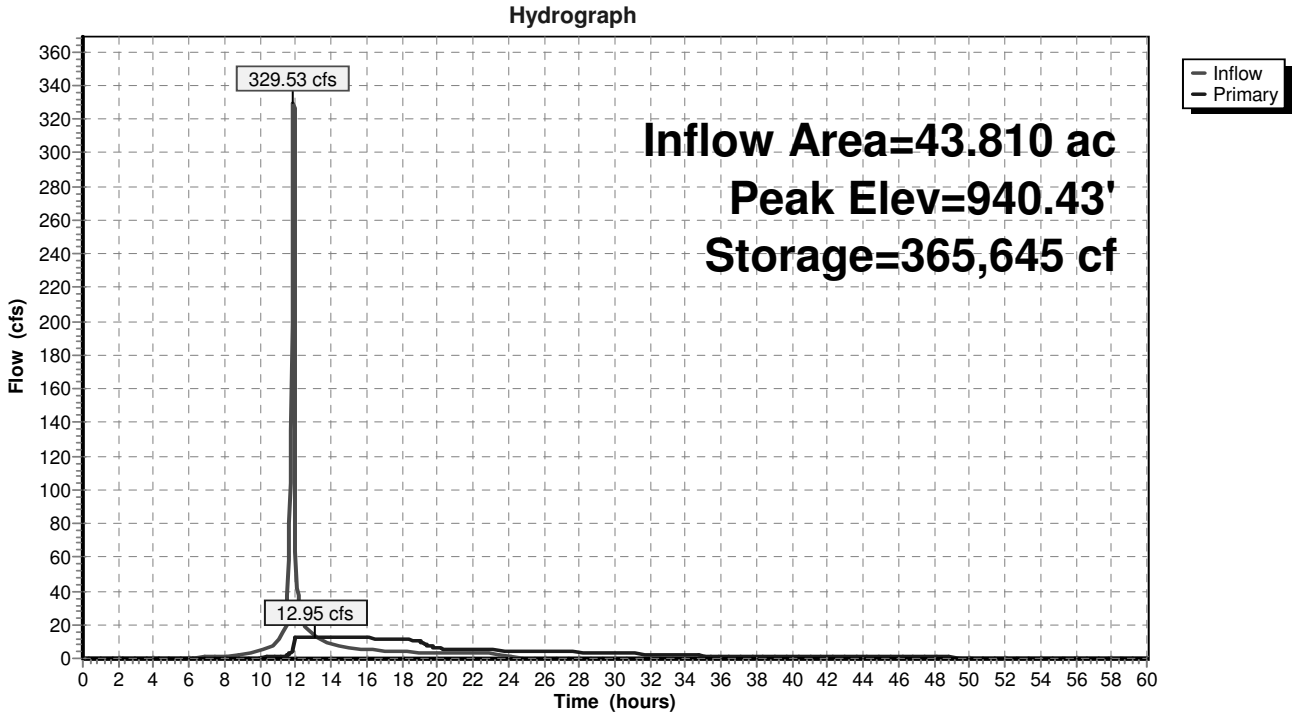
Volume	Invert	Avail.Storage	Storage Description
#1	935.00'	413,937 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

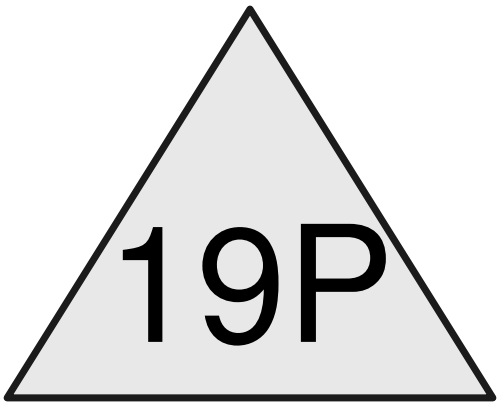
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
935.00	52,542	0	0
936.00	57,785	55,164	55,164
937.00	63,221	60,503	115,667
938.00	68,806	66,014	181,680
939.00	74,492	71,649	253,329
940.00	80,279	77,386	330,715
941.00	86,166	83,223	413,937

Device	Routing	Invert	Outlet Devices
#1	Device 4	935.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Device 4	936.00'	**4.0" Vert. Orifice/Grate X 5.00** C= 0.600
#3	Device 4	938.50'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	935.00'	**15.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=12.95 cfs @ 13.10 hrs HW=940.43' (Free Discharge)
└**4=Orifice/Grate** (Orifice Controls 12.95 cfs @ 10.55 fps)
  ├**1=Orifice/Grate** (Passes < 2.15 cfs potential flow)
  ├**2=Orifice/Grate** (Passes < 4.34 cfs potential flow)
  └**3=Orifice/Grate** (Passes < 26.75 cfs potential flow)

Pond 17P: post basin





post basin wq

Subcat Reach Pond Link

Routing Diagram for 20140749-onsite only
Prepared by Symanetc, Printed 12/11/2014

Summary for Pond 19P: post basin wq

Inflow	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af
Outflow	=	0.75 cfs @	0.00 hrs,	Volume=	1.006 af, Atten= 0%, Lag= 0.0 min
Primary	=	0.75 cfs @	0.00 hrs,	Volume=	1.006 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Starting Elev= 935.88' Surf.Area= 57,156 sf Storage= 48,267 cf
Peak Elev= 935.88' @ 0.00 hrs Surf.Area= 57,156 sf Storage= 48,267 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

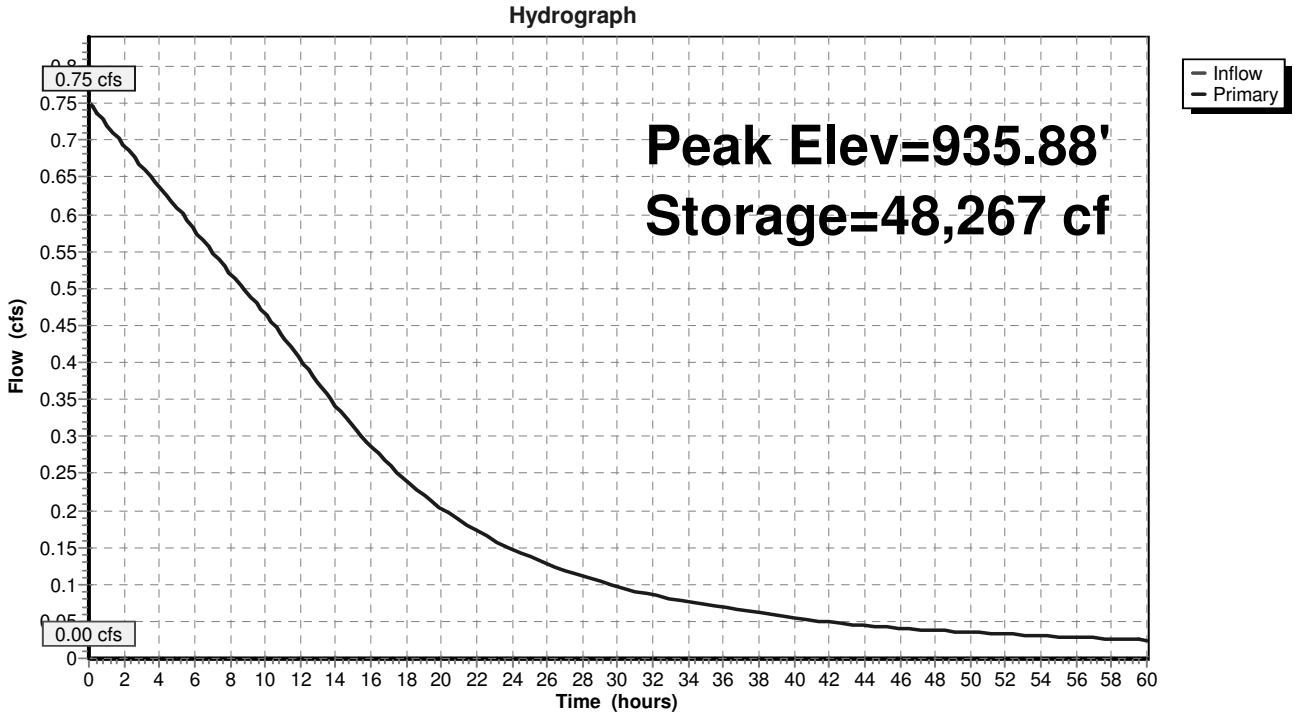
Volume	Invert	Avail.Storage	Storage Description
#1	935.00'	413,937 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
935.00	52,542	0	0
936.00	57,785	55,164	55,164
937.00	63,221	60,503	115,667
938.00	68,806	66,014	181,680
939.00	74,492	71,649	253,329
940.00	80,279	77,386	330,715
941.00	86,166	83,223	413,937

Device	Routing	Invert	Outlet Devices
#1	Primary	935.00'	**6.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.75 cfs @ 0.00 hrs HW=935.88' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.75 cfs @ 3.82 fps)

Pond 19P: post basin wq



Engineers, Surveyors, Planners, Scientists

November 25, 2014

Tina Wawszkiewicz, PE
City of Dublin, Engineering
5800 Shier-Rings Rd

Dublin, OH 43016

Subject: Liggett Tract TIS
Memorandum of Understanding

Dear Ms. Wawszkiewicz,

The following summarizes our understanding of the scope of work for the traffic impact study discussed during our October 22, 2014 project initiation conference call:

Proposed Development
The proposed development is located on the north side of Rings Road, east of Cosgray Road and along the east side of the existing CSX Transportation railroad tracks. The project site is planned to develop with a mix of condominiums and single family dwelling units with a maximum number of total units not to exceed 141lots. Three access points are planned to serve the site that will all connect along Churchman Road north of Rings Road.

Intersections to Analyze
The following intersections will be included in the project study area

- Rings Road/Cosgray Road
- Rings Road/Eiterman Road
- Rings Road/Churchman Road
- Rings Road/Avery Road
- Churchman Road/Site Drive(s)
- Cosgray Road/Churchman Road

Data Collection
Manual turning movement volume counts previously performed by EMH&T personnel at the Rings Road/Cosgray Road and Rings Road/Eiterman Road intersections will be utilized. Likewise, count data at the Rings Road/Avery Road from EMH&T and City personnel will be used in the study. Heavy vehicles were counted separately during these counts and have been listed separately on the count summary sheets. Copies of all count data have been attached. Previous traffic volume data will be increased to opening and horizon year conditions based on previously accepted growth rates discussed with Dublin personnel and documented in the

Lare Tract MOU. Crash data for the study area will not be obtained or analyzed as part of this study.

Trip Generation

Site generated trip ends will be forecast using data and methodology contained in Trip Generation 9th Edition (Institute of Transportation Engineers, 2012). Morning and afternoon peak hour traffic volumes will be estimated using trip generation rates for Land Use Code 210 (Single Family-Detached Housing). Even though the mix of residential units includes single family and condominium units, all trip generation will be based on the higher single family data. The proposed development is expected to include a combination of no more than 141 units that is estimated to generate 108 external trips in the morning peak hour (27 entering, 81 exiting) and 143 external trips in the afternoon peak hour (90 entering, 53 exiting). Detailed trip generation calculations are included in the table below for reference:

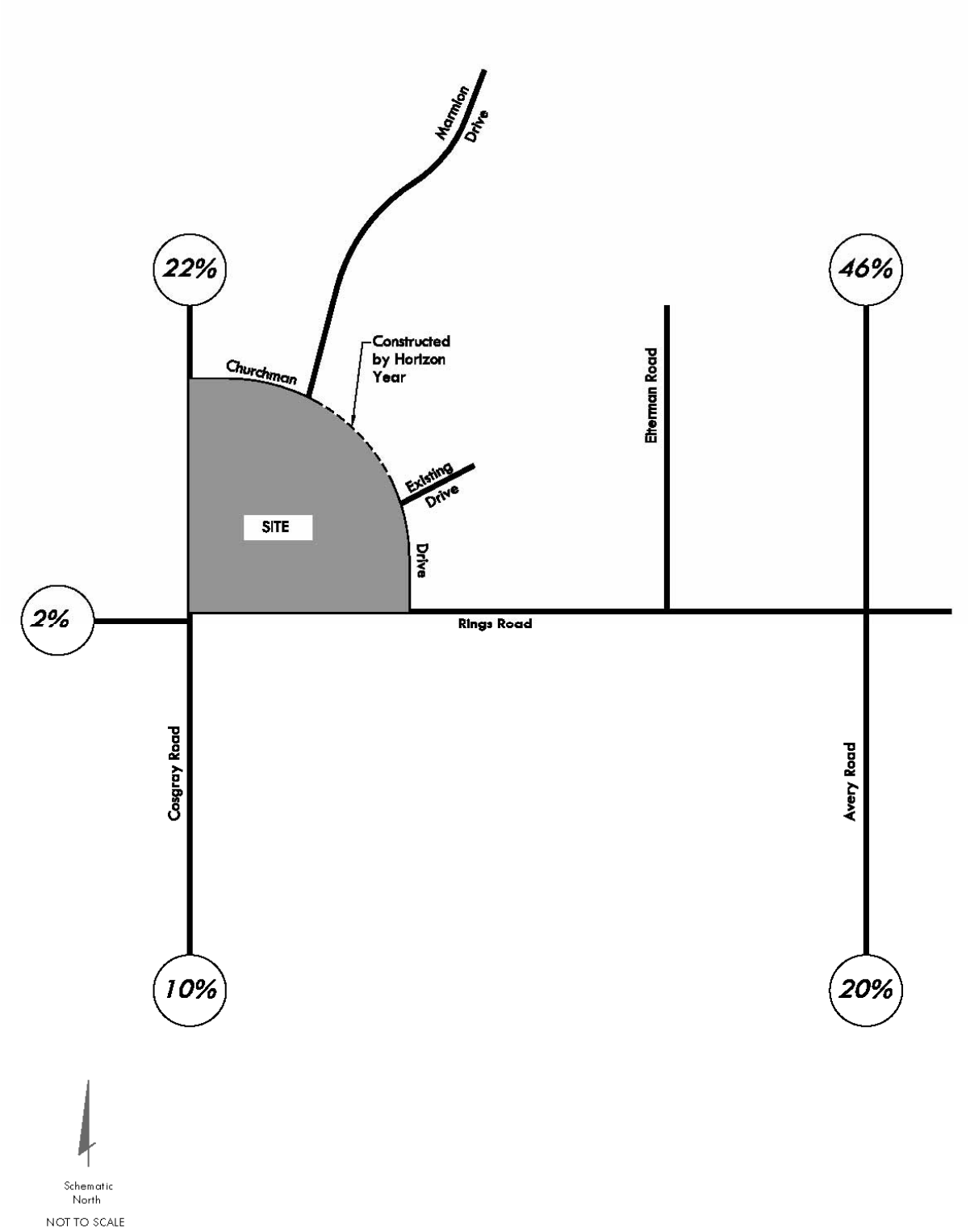
Land Use	Square Feet or Units	ITE Code	Time Period	ITE Formula	Total Trips	Trips Entering	Trips Exiting
Single Family - Detached	141 units	210	ADT	Ln(T)=0.92Ln(x)+2.72	1,442	721	721
			AM Peak	T=0.70(x)+9.74	108	27	81
			PM Peak	Ln(T)=0.90Ln(x)+0.51	143	90	53

Trip Distribution

Site generated traffic volumes will be assigned to the adjacent street network according to the distribution used in the Lare Tract Traffic Study published in 2013. This distribution is illustrated in **Figure 1** below. All trips will be assigned to the adjacent street network via Churchman Road to the adjacent street network including Cosgray Road, Rings Road and Marmion Drive. Some site generated trips may use adjacent residential streets opposite Churchman Road but all site traffic was assigned to the gateways for simplicity in completing this study.

In the opening year, it is assumed that Churchman Road will be available to serve the Liggett Tract site from Marmion Drive north to Cosgray Road only. All site traffic will be assigned via these connections in the Opening Year only. By the Horizon Year, the full connection and reconstruction of Churchman Road to the south, connecting to Rings Road, is assumed to be in place. Consequently, the Lare Tract site traffic will also be re-assigned in the Opening Year to only the Rings Road intersection via Churchman Road. By the Horizon Year, the full connections and completion of Churchman Road will allow the Lare Tract site traffic to be fully distributed as indicated in the TIS for the Horizon Year.

FIGURE 1: Trip Distribution



Traffic Volume Projections

Detailed traffic volume calculations are attached illustrating the development of 2015 and 2025, background and full build traffic volumes. Horizon year traffic volumes were calculated based on the best available information for each intersection within the study area.

- Background horizon year (2025) traffic volumes at the Rings Road/Cosgray Road and Rings Road/Eiterman Road intersections, and 2015 traffic volumes at Avery Road/Rings Road were developed by expanding 2013 counted traffic volumes to the horizon year with the application of a 3.3 percent growth rate. This growth rate was established by comparing total intersection entering volumes for the years 2008 and 2013 for study area intersections Rings Road/Cosgray Road and Rings Road/Avery Road. Detailed calculations have been provided.

- For 2025 volumes at Avery Road/Rings Road intersection, the calculation of growth rate of each movement was based on comparison of 2030 model (plate A of Avondale Woods TIS) and 2013 Background traffic volumes (in 5300 TIS). These growth rates were applied to 2013 Background traffic volumes and site trips of Avondale Woods as well as 5300 site trips were added to obtain 2025 Full Build traffic volumes. It was assumed that the site trips of Lare Tract and current Liggett development were accounted in 2030 model for this intersection. See calculation of attached plates G and G1.

- Horizon year traffic volumes for Churchman Road were taken from the City of Dublin, travel demand model. 2030 travel demand model projections were reduced to 2025 horizon year conditions assuming linear growth from 2016 to 2030. It is assumed (and consistent with Lare Tract study) that approximately 87 percent of traffic volumes forecast for Churchman Road are expected to use the Rings Road/Churchman Road intersection and approximately 13 percent are expected to use the Cosgray Road/Churchman Road intersection.

Traffic Analyses

The following will be conducted as part of the impact analysis:

- Intersection capacity will be evaluated at all study area intersections using the methodologies outlined in the Highway Capacity Manual, with the assistance of the Highway Capacity Software (HCS) for stop-controlled intersections and SIDRA software at roundabouts.

- Turn lane warrants will be evaluated on the through road at stop-controlled intersections in the study area based on graphical solutions provided in the Location and Design Manual (Ohio Department of Transportation, 2014).

- Turn lane storage and deceleration requirements will be recommended for any warranted turn lane improvement based on guidelines published in the Location and Design Manual § 401.6 (Ohio Department of Transportation, 2014).
- An intersection sight distance exhibit will be developed for the proposed Churchman Road connection to Cosgray Road.

Future Area Improvements
City personnel indicated that the first phase of the future Cosgray Road – Rings Road Connector (Churchman Road) will be the northern portion between Cosgray Road and Marmion Drive to be constructed in 2015. Churchman Road will initially connect to Cosgray Road as a stop-controlled, 'T' intersection with only Churchman Road stopping; the City has long range plans to construct a roundabout at Cosgray/Churchman but a future roundabout is assumed to occur beyond the horizon year for this study.

A second phase of construction will extend Churchman Road south to Rings Road by providing the missing portion of the roadway and reconstructing the piece from the Lare Tract entrance south to Rings Road. The City does plan to construct a roundabout at the Churchman Road/Rings Road intersection sometime after 2015 but before the Horizon Year for this study. As a result, the study will analyze a traditional "tee" type intersection at the Cosgray Road connection for both the 2015 and 2025 conditions there. At the Rings Road intersection, Churchman Road will be analyzed as stop-controlled in the 2015 Opening Year and as a roundabout in the 2025 Horizon Year.

Please signify your concurrence with the scope of work outlined herein by signing below and returning this Memorandum of Understanding. If you have any questions or comments, please feel free to contact me directly at (614) 775-4650.

Sincerely,
EVANS, MECHWART, HAMBLETON & TILTON, INC.

Douglas A. Bender, PE, PTOE
Senior Traffic Engineer

ACCEPTANCE AND APPROVAL OF MEMORANDUM OF UNDERSTANDING

By: _____

Date: _____

EMH&T

5500 New Albany Rd.
Columbus, OH 43054
emht.com

File Name : Avery-Rings AM
Site Code : 00000000
Start Date : 1/9/2013
Page No : 1

Groups Printed- Cars - Trucks

	AVERY Southbound					RINGS Westbound					AVERY Northbound					RINGS Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	1	54	11	0	66	0	0	1	0	1	5	90	0	0	95	34	0	15	0	49	211
07:15 AM	0	85	8	0	93	0	0	0	0	0	6	115	0	0	121	35	0	32	0	67	281
07:30 AM	0	87	9	0	96	0	0	2	0	2	8	143	1	0	152	42	0	10	0	52	302
07:45 AM	1	71	11	0	83	1	0	2	0	3	11	161	1	0	173	41	0	13	0	54	313
Total	2	297	39	0	338	1	0	5	0	6	30	509	2	0	541	152	0	70	0	222	1107
08:00 AM	1	67	9	0	77	1	1	1	0	3	5	149	1	0	155	26	0	10	0	36	271
08:15 AM	0	76	9	0	85	0	1	0	0	1	9	149	1	0	159	35	0	13	0	48	293
08:30 AM	0	68	6	0	74	1	0	0	0	1	6	105	1	0	112	34	0	9	0	43	230
08:45 AM	0	45	14	0	59	0	0	0	0	0	11	116	0	0	127	36	0	20	0	56	242
Total	1	256	38	0	295	2	2	1	0	5	31	519	3	0	553	131	0	52	0	183	1036
Grand Total	3	553	77	0	633	3	2	6	0	11	61	1028	5	0	1094	283	0	122	0	405	2143
Apprch %	0.5	87.4	12.2	0		27.3	18.2	54.5	0		5.6	94	0.5	0		69.9	0	30.1	0		
Total %	0.1	25.8	3.6	0	29.5	0.1	0.1	0.3	0	0.5	2.8	48	0.2	0	51	13.2	0	5.7	0	18.9	
Cars	2	542	74	0	618	2	0	5	0	7	57	1020	2	0	1079	281	0	115	0	396	2100
% Cars	66.7	98	96.1	0	97.6	66.7	0	83.3	0	63.6	93.4	99.2	40	0	98.6	99.3	0	94.3	0	97.8	98
Trucks	1	11	3	0	15	1	2	1	0	4	4	8	3	0	15	2	0	7	0	9	43
% Trucks	33.3	2	3.9	0	2.4	33.3	100	16.7	0	36.4	6.6	0.8	60	0	1.4	0.7	0	5.7	0	2.2	2
7:15-8:15	2	310	37			2	1	5			30	568	3			144	0	65			

Traffic Engineering Services, Inc.
742 Radio Drive
Lewis Center, OH 43035
(740) 549-0070

File Name : Avery Rd & Rings Rd-Cara Rd - PM Peak
Site Code : 00000619
Start Date : 6/19/2012
Page No : 1

Groups Printed- All Vehicles

	Avery Road Southbound				Cara Road Westbound				Avery Road Northbound				Rings Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
04:00 PM	0	84	28	112	0	0	1	1	12	56	1	69	9	0	6	15	197
04:15 PM	3	131	44	178	1	0	3	4	15	73	1	89	13	0	8	21	292
04:30 PM	0	148	40	188	0	0	0	0	7	59	0	66	8	1	5	14	268
04:45 PM	3	164	58	225	0	0	2	2	10	88	2	100	6	1	8	15	342
Total	6	527	170	703	1	0	6	7	44	276	4	324	36	2	27	65	1099
05:00 PM	9	197	58	264	2	0	2	4	11	69	2	82	5	1	7	13	383
05:15 PM	12	224	64	300	6	2	4	12	14	93	12	119	9	4	10	23	454
05:30 PM	9	194	46	249	1	2	2	5	16	79	9	104	7	1	12	20	378
05:45 PM	4	167	52	223	1	0	4	5	7	82	9	98	6	2	11	19	345
Total	34	782	220	1036	10	4	12	26	48	323	32	403	27	8	40	75	1540
Grand Total	40	1309	390	1739	11	4	18	33	92	599	36	727	63	10	67	140	2639
Apprch %	2.3	75.3	22.4		33.3	12.1	54.5		12.7	82.4	5.0		45.0	7.1	47.9		
Total %	1.5	49.6	14.8	65.9	0.4	0.2	0.7	1.3	3.5	22.7	1.4	27.5	2.4	0.4	2.5	5.3	

	Avery Road Southbound				Cara Road Westbound				Avery Road Northbound				Rings Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	34	782	220	1036	10	4	12	26	48	323	32	403	27	8	40	75	1540
Percent	3.3	75.5	21.2		38.5	15.4	46.2		11.9	80.1	7.9		36.0	10.7	53.3		
05:15 Volume	12	224	64	300	6	2	4	12	14	93	12	119	9	4	10	23	454
Peak Factor																	0.848
High Int.	05:15 PM				05:15 PM				05:15 PM				05:15 PM				
Volume	12	224	64	300	6	2	4	12	14	93	12	119	9	4	10	23	
Peak Factor				0.863				0.542				0.847				0.815	

EMH&T

5500 New Albany Rd.
Columbus, OH 43054
emht.com

File Name : rings-eiterman
Site Code : 00000000
Start Date : 1/9/2013
Page No : 1

Groups Printed- Cars - Trucks

	EITERMAN Southbound					RINGS Westbound					EITERMAN Northbound					RINGS Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	4	0	6	0	10	0	45	1	0	46	0	0	0	0	0	3	13	0	0	16	72
04:15 PM	10	0	7	0	17	0	39	8	0	47	0	0	0	0	0	4	13	0	0	17	81
04:30 PM	5	0	8	0	13	0	35	3	0	38	0	0	0	0	0	5	12	0	0	17	68
04:45 PM	4	0	9	0	13	0	42	5	0	47	0	0	0	0	0	4	14	0	0	18	78
Total	23	0	30	0	53	0	161	17	0	178	0	0	0	0	0	16	52	0	0	68	299
05:00 PM	7	0	13	0	20	0	68	10	0	78	0	0	0	0	0	6	11	0	0	17	115
05:15 PM	7	0	15	0	22	0	58	7	0	65	0	0	0	0	0	7	10	0	0	17	104
05:30 PM	4	0	10	0	14	0	51	13	0	64	0	0	0	0	0	5	8	0	0	13	91
05:45 PM	9	0	11	0	20	0	36	5	0	41	0	0	0	0	0	4	10	0	0	14	75
Total	27	0	49	0	76	0	213	35	0	248	0	0	0	0	0	22	39	0	0	61	385
*** BREAK ***																					
07:00 AM	8	0	6	0	14	0	18	6	0	24	0	0	0	0	0	7	60	0	0	67	105
07:15 AM	14	0	4	0	18	0	21	4	0	25	0	0	0	0	0	13	84	0	0	97	140
07:30 AM	6	0	5	0	11	0	18	10	0	28	0	0	0	0	0	30	47	0	0	77	116
07:45 AM	8	0	5	0	13	0	13	6	0	19	0	0	0	0	0	26	26	0	0	52	84
Total	36	0	20	0	56	0	70	26	0	96	0	0	0	0	0	76	217	0	0	293	445
08:00 AM	4	0	4	0	8	0	13	7	0	20	0	0	0	0	0	24	35	0	0	59	87
08:15 AM	3	0	2	0	5	0	10	5	0	15	0	0	0	0	0	10	30	0	0	40	60
08:30 AM	3	0	3	0	6	0	13	13	0	26	0	0	0	0	0	6	40	0	0	46	78
08:45 AM	33	0	13	0	46	0	18	39	0	57	0	0	0	0	0	18	34	0	0	52	155
Total	43	0	22	0	65	0	54	64	0	118	0	0	0	0	0	58	139	0	0	197	380
Grand Total	129	0	121	0	250	0	498	142	0	640	0	0	0	0	0	172	447	0	0	619	1509
Apprch %	51.6	0	48.4	0		0	77.8	22.2	0		0	0	0	0		27.8	72.2	0	0		
Total %	8.5	0	8	0	16.6	0	33	9.4	0	42.4	0	0	0	0	0	11.4	29.6	0	0	41	
Cars	124	0	119	0	243	0	487	142	0	629	0	0	0	0	0	165	439	0	0	604	1476
% Cars	96.1	0	98.3	0	97.2	0	97.8	100	0	98.3	0	0	0	0	0	95.9	98.2	0	0	97.6	97.8
Trucks	5	0	2	0	7	0	11	0	0	11	0	0	0	0	0	7	8	0	0	15	33
% Trucks	3.9	0	1.7	0	2.8	0	2.2	0	0	1.7	0	0	0	0	0	4.1	1.8	0	0	2.4	2.2
7:15-8:15	32	0	18			0	65	27			0	0	0			93	192	0			

EMH&T
5500 New Albany Rd.
Columbus, OH 43054
emht.com

File Name : Rings-Cosgray
Site Code : 00000000
Start Date : 1/9/2013
Page No : 1

Groups Printed- Cars - Trucks

	COSGRAY Southbound					RINGS Westbound					COSGRAY Northbound					RINGS Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	1	46	2	0	49	12	3	2	0	17	6	92	24	0	122	7	13	18	0	38	226
07:15 AM	2	24	3	0	29	13	2	2	0	17	4	107	37	0	148	5	17	6	0	28	222
07:30 AM	3	49	1	0	53	10	5	0	0	15	5	147	53	0	205	10	18	13	0	41	314
07:45 AM	1	35	1	0	37	10	2	2	0	14	5	118	37	0	160	11	17	9	0	37	248
Total	7	154	7	0	168	45	12	6	0	63	20	464	151	0	635	33	65	46	0	144	1010
08:00 AM	3	31	1	0	35	7	4	1	0	12	5	95	28	0	128	4	11	13	0	28	203
08:15 AM	2	28	1	0	31	7	0	0	0	7	4	72	30	0	106	4	10	6	0	20	164
08:30 AM	3	26	0	0	29	10	0	1	0	11	2	59	30	0	91	9	8	9	0	26	157
08:45 AM	2	20	0	0	22	16	5	3	0	24	3	56	30	0	89	4	9	5	0	18	153
Total	10	105	2	0	117	40	9	5	0	54	14	282	118	0	414	21	38	33	0	92	677
*** BREAK ***																					
04:00 PM	2	67	8	0	77	24	12	2	0	38	11	47	10	0	68	3	1	10	0	14	197
04:15 PM	0	92	13	0	105	29	16	3	0	48	16	50	10	0	76	3	3	7	0	13	242
04:30 PM	3	87	11	0	101	20	10	0	0	30	8	48	11	0	67	3	5	8	0	16	214
04:45 PM	2	110	4	0	116	25	15	7	0	47	11	64	18	0	93	1	5	8	0	14	270
Total	7	356	36	0	399	98	53	12	0	163	46	209	49	0	304	10	14	33	0	57	923
05:00 PM	3	115	8	0	126	42	16	2	0	60	21	39	8	0	68	1	0	9	0	10	264
05:15 PM	1	142	9	0	152	53	20	6	0	79	17	60	6	0	83	4	4	6	0	14	328
05:30 PM	2	126	10	0	138	38	10	7	0	55	22	60	11	0	93	1	2	12	0	15	301
05:45 PM	1	130	10	0	141	41	14	2	0	57	18	49	12	0	79	5	1	5	0	11	288
Total	7	513	37	0	557	174	60	17	0	251	78	208	37	0	323	11	7	32	0	50	1181
Grand Total	31	1128	82	0	1241	357	134	40	0	531	158	1163	355	0	1676	75	124	144	0	343	3791
Apprch %	2.5	90.9	6.6	0		67.2	25.2	7.5	0		9.4	69.4	21.2	0		21.9	36.2	42	0		
Total %	0.8	29.8	2.2	0	32.7	9.4	3.5	1.1	0	14	4.2	30.7	9.4	0	44.2	2	3.3	3.8	0	9	
Cars	28	1110	81	0	1219	352	132	38	0	522	156	1148	351	0	1655	75	124	142	0	341	3737
% Cars	90.3	98.4	98.8	0	98.2	98.6	98.5	95	0	98.3	98.7	98.7	98.9	0	98.7	100	100	98.6	0	99.4	98.6
Trucks	3	18	1	0	22	5	2	2	0	9	2	15	4	0	21	0	0	2	0	2	54
% Trucks	9.7	1.6	1.2	0	1.8	1.4	1.5	5	0	1.7	1.3	1.3	1.1	0	1.3	0	0	1.4	0	0.6	1.4
7:15-8:15	9	139	6			40	13	5			19	467	155			30	63	41			

EMH&T, Inc.
5500 New Albany Rd
Columbus, Ohio 43054
614-775-4500

File Name : Rings_Cosgray
Site Code : 00000000
Start Date : 2/26/2008
Page No : 1

Groups Printed- Cars - Trucks

	Cosgray Rd Southbound				Rings Rd Westbound				Cosgray Rd Northbound				Rings Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	5	27	2	34	3	1	1	5	6	73	15	94	2	10	10	22	155
07:15 AM	3	29	0	32	3	3	0	6	2	66	18	86	5	15	12	32	156
07:30 AM	2	27	1	30	6	2	0	8	5	81	28	114	1	13	8	22	174
07:45 AM	2	27	0	29	3	2	1	6	5	127	37	169	2	17	5	24	228
Total	12	110	3	125	15	8	2	25	18	347	98	463	10	55	35	100	713
08:00 AM	2	26	2	30	6	2	2	10	5	77	21	103	3	8	6	17	160
08:15 AM	0	25	2	27	3	2	1	6	2	75	18	95	3	4	6	13	141
08:30 AM	2	33	3	38	3	1	3	7	1	82	17	100	1	4	6	11	156
08:45 AM	6	17	1	24	4	2	3	9	1	58	18	77	5	8	7	20	130
Total	10	101	8	119	16	7	9	32	9	292	74	375	12	24	25	61	587
*** BREAK ***																	
04:00 PM	0	82	4	86	11	9	3	23	5	48	7	60	1	0	3	4	173
04:15 PM	1	67	4	72	13	8	1	22	9	32	3	44	3	2	7	12	150
04:30 PM	4	81	8	93	17	12	1	30	9	35	3	47	2	3	4	9	179
04:45 PM	0	81	3	84	19	10	6	35	7	34	10	51	0	1	5	6	176
Total	5	311	19	335	60	39	11	110	30	149	23	202	6	6	19	31	678
05:00 PM	0	99	8	107	24	12	1	37	11	38	3	52	1	3	8	12	208
05:15 PM	1	106	5	112	34	14	0	48	15	34	5	54	1	3	9	13	227
05:30 PM	0	82	1	83	20	7	0	27	5	27	5	37	1	4	4	9	156
05:45 PM	2	58	2	62	11	9	5	25	9	38	13	60	1	0	10	11	158
Total	3	345	16	364	89	42	6	137	40	137	26	203	4	10	31	45	749
Grand Total	30	867	46	943	180	96	28	304	97	925	221	1243	32	95	110	237	2727
Apprch %	3.2	91.9	4.9		59.2	31.6	9.2		7.8	74.4	17.8		13.5	40.1	46.4		
Total %	1.1	31.8	1.7	34.6	6.6	3.5	1	11.1	3.6	33.9	8.1	45.6	1.2	3.5	4	8.7	
Cars	26	851	43	920	177	96	28	301	93	901	214	1208	31	93	104	228	2657
% Cars	86.7	98.2	93.5	97.6	98.3	100	100	99	95.9	97.4	96.8	97.2	96.9	97.9	94.5	96.2	97.4
Trucks	4	16	3	23	3	0	0	3	4	24	7	35	1	2	6	9	70
% Trucks	13.3	1.8	6.5	2.4	1.7	0	0	1	4.1	2.6	3.2	2.8	3.1	2.1	5.5	3.8	2.6

7:15-8:15	9	109	3		18	9	3		17	351	104		11	53	31		
4:30-5:30	5	367	24		94	48	8		42	141	21		4	10	26		

City of Dublin
Engieering
5800 Shier Rings Road
Dublin, Ohio 43016

File Name : AveryringsAM 92706
Site Code : 00000000
Start Date : 9/27/2006
Page No : 1

Groups Printed- Cars - Trucks

	AVERY From North					RINGS From East					AVERY From South					RINGS From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	5	49	1	0	55	2	0	2	0	4	0	79	1	0	80	22	1	28	0	51	190
07:15 AM	7	61	0	0	68	3	0	1	0	4	3	84	4	0	91	21	0	40	0	61	224
07:30 AM	8	53	0	0	61	2	0	1	0	3	0	142	7	0	149	15	0	55	0	70	283
07:45 AM	8	57	0	0	65	1	0	0	0	1	1	154	5	0	160	5	1	53	0	59	285
Total	28	220	1	0	249	8	0	4	0	12	4	459	17	0	480	63	2	176	0	241	982
08:00 AM	5	65	0	0	70	0	0	1	0	1	1	108	4	0	113	17	2	30	0	49	233
08:15 AM	6	41	0	0	47	2	0	1	0	3	1	77	3	0	81	8	0	34	0	42	173
08:30 AM	8	65	1	0	74	0	0	1	0	1	1	88	8	0	97	10	0	30	0	40	212
08:45 AM	10	39	0	0	49	2	0	0	0	2	0	109	4	0	113	13	0	24	0	37	201
Total	29	210	1	0	240	4	0	3	0	7	3	382	19	0	404	48	2	118	0	168	819
Grand Total	57	430	2	0	489	12	0	7	0	19	7	841	36	0	884	111	4	294	0	409	1801
Apprch %	11.7	87.9	0.4	0		63.2	0	36.8	0		0.8	95.1	4.1	0		27.1	1	71.9	0		
Total %	3.2	23.9	0.1	0	27.2	0.7	0	0.4	0	1.1	0.4	46.7	2	0	49.1	6.2	0.2	16.3	0	22.7	
Cars	56	424	2	0	482	12	0	7	0	19	7	840	36	0	883	111	4	292	0	407	1791
% Cars	98.2	98.6	100	0	98.6	100	0	100	0	100	100	99.9	100	0	99.9	100	100	99.3	0	99.5	99.4
Trucks	1	6	0	0	7	0	0	0	0	0	0	1	0	0	1	0	0	2	0	2	10
% Trucks	1.8	1.4	0	0	1.4	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0.7	0	0.5	0.6

	AVERY From North					RINGS From East					AVERY From South					RINGS From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	7	61	0	0	68	3	0	1	0	4	3	84	4	0	91	21	0	40	0	61	224
07:30 AM	8	53	0	0	61	2	0	1	0	3	0	142	7	0	149	15	0	55	0	70	283
07:45 AM	8	57	0	0	65	1	0	0	0	1	1	154	5	0	160	5	1	53	0	59	285
08:00 AM	5	65	0	0	70	0	0	1	0	1	1	108	4	0	113	17	2	30	0	49	233
Total Volume	28	236	0	0	264	6	0	3	0	9	5	488	20	0	513	58	3	178	0	239	1025
% App. Total	10.6	89.4	0	0		66.7	0	33.3	0		1	95.1	3.9	0		24.3	1.3	74.5	0		
PHF	.875	.908	.000	.000	.943	.500	.000	.750	.000	.563	.417	.792	.714	.000	.802	.690	.375	.809	.000	.854	.899

Gary
Wed

City of Dublin
Engieering
5800 Shier Rings Road
Dublin, Ohio 43016

File Name : AvryringsPM 92706
Site Code : 00000000
Start Date : 9/27/2006
Page No : 1

Groups Printed- Cars - Trucks

	AVERY From North					RINGS From East					AVERY From South					RINGS From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	36	107	2	0	145	1	0	1	0	2	0	67	13	0	80	6	0	7	0	13	240
04:15 PM	26	125	1	0	152	0	0	0	0	0	1	66	14	0	81	7	0	17	0	24	257
04:30 PM	38	177	1	0	216	0	1	0	0	1	0	79	10	0	89	9	0	12	0	21	327
04:45 PM	39	182	1	0	222	0	0	3	0	3	0	84	12	0	96	14	0	17	0	31	352
Total	139	591	5	0	735	1	1	4	0	6	1	296	49	0	346	36	0	53	0	89	1176
05:00 PM	54	242	1	0	297	1	0	1	0	2	1	118	13	0	132	5	0	15	0	20	451
05:15 PM	52	205	11	0	268	1	1	0	0	2	1	90	10	0	101	8	1	19	0	28	399
05:30 PM	32	167	4	0	203	0	0	2	0	2	1	54	8	0	63	7	1	10	0	18	286
05:45 PM	33	141	3	0	177	0	0	2	0	2	1	65	5	0	71	14	0	15	0	29	279
Total	171	755	19	0	945	2	1	5	0	8	4	327	36	0	367	34	2	59	0	95	1415
Grand Total	310	1346	24	0	1680	3	2	9	0	14	5	623	85	0	713	70	2	112	0	184	2591
Apprch %	18.5	80.1	1.4	0		21.4	14.3	64.3	0		0.7	87.4	11.9	0		38	1.1	60.9	0		
Total %	12	51.9	0.9	0	64.8	0.1	0.1	0.3	0	0.5	0.2	24	3.3	0	27.5	2.7	0.1	4.3	0	7.1	
Cars	310	1341	24	0	1675	3	2	9	0	14	5	621	85	0	711	65	2	112	0	179	2579
% Cars	100	99.6	100	0	99.7	100	100	100	0	100	100	99.7	100	0	99.7	92.9	100	100	0	97.3	99.5
Trucks	0	5	0	0	5	0	0	0	0	0	0	2	0	0	2	5	0	0	0	5	12
% Trucks	0	0.4	0	0	0.3	0	0	0	0	0	0	0.3	0	0	0.3	7.1	0	0	0	2.7	0.5

	AVERY From North					RINGS From East					AVERY From South					RINGS From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	38	177	1	0	216	0		0	0	1	0	79	10	0	89	9	0	12	0	21	327
04:45 PM	39	182	1	0	222	0	0		0		0	84	12	0	96		0	17	0	31	352
05:00 PM	54	242	1	0	297	1	0	1	0	2	1	118	13	0	132	5	0	15	0	20	451
05:15 PM	52	205	11	0	268	1	1	0	0	2	1	90	10	0	101	8	1	19	0	28	399
Total Volume	183	806	14	0	1003	2	2	4	0	8	2	371	45	0	418	36	1	63	0	100	1529
% App. Total	18.2	80.4	1.4	0		25	25	50	0		0.5	88.8	10.8	0		36	1	63	0		
PHF	.847	.833	.318	.000	.844	.500	.500	.333	.000	.667	.500	.786	.865	.000	.792	.643	.250	.829	.000	.806	.848

Lare Tract
Traffic Impact Study
Growth Rate Calculation

2008 Interpolated Traffic Volumes — AM Peak Hour

		Avery	Road			
				6	RT	
RT	TH		LT	0	TH	
31	257		1	3	LT	Rings Road
	LT		168	23	511	4
	TH		2	LT	TH	RT
	RT		60			

2008 Interpolated Traffic Volumes — PM Peak Hour

		Avery	Road			
				5	RT	
RT	TH		LT	3	TH	
194	799		20	6	LT	Rings Road
	LT		53	46	357	11
	TH		3	LT	TH	RT
	RT		37			

2008 Interpolated Traffic Volumes — AM + PM
2600 =Total Intersection Volume

		Avery	Road			
				11	RT	
RT	TH		LT	3	TH	
225	1056		21	9	LT	Rings Road
	LT		221	69	868	15
	TH		5	LT	TH	RT
	RT		97			

2013 Counted Traffic Volumes — AM Peak Hour

		Avery	Road			
				5	RT	
RT	TH		LT	1	TH	
37	310		2	2	LT	Rings Road
	LT		144	30	568	3
	TH		0	LT	TH	RT
	RT		65			

2013 Counted Traffic Volumes — PM Peak Hour

		Avery	Road			
				12	RT	
RT	TH		LT	4	TH	
220	782		34	10	LT	Rings Road
	LT		27	48	323	32
	TH		8	LT	TH	RT
	RT		40			

2013 Counted Traffic Volumes — AM + PM
2707 =Total Intersection Volume

		Avery	Road			
				17	RT	
RT	TH		LT	5	TH	
257	1092		36	12	LT	Rings Road
	LT		171	78	891	35
	TH		8	LT	TH	RT
	RT		105			

2008 Counted Traffic Volumes — AM Peak Hour

		Cosgray	Road			
				3	RT	
RT	TH		LT	9	TH	
3	109		9	18	LT	Rings Road
	LT		11	17	351	104
	TH		53	LT	TH	RT
	RT		31			

2008 Counted Traffic Volumes — PM Peak Hour

		Cosgray	Road			
				8	RT	
RT	TH		LT	48	TH	
24	367		5	94	LT	Rings Road
	LT		4	42	141	21
	TH		10	LT	TH	RT
	RT		26			

2008 Counted Traffic Volumes — AM + PM
1508 =Total Intersection Volume

		Cosgray	Road			
				11	RT	
RT	TH		LT	57	TH	
27	476		14	112	LT	Rings Road
	LT		15	59	492	125
	TH		63	LT	TH	RT
	RT		57			

2013 Counted Traffic Volumes — AM Peak Hour

		Cosgray	Road			
				6	RT	
RT	TH		LT	12	TH	
7	154		7	45	LT	Rings Road
	LT		33	20	464	151
	TH		65	LT	TH	RT
	RT		46			

2013 Counted Traffic Volumes — PM Peak Hour

		Cosgray	Road			
				15	RT	
RT	TH		LT	61	TH	
32	454		9	140	LT	Rings Road
	LT		9	57	211	43
	TH		14	LT	TH	RT
	RT		31			

2013 Counted Traffic Volumes — AM + PM
2086 =Total Intersection Volume

		Cosgray	Road			
				21	RT	
RT	TH		LT	73	TH	
39	608		16	185	LT	Rings Road
	LT		42	77	675	194
	TH		79	LT	TH	RT
	RT		77			

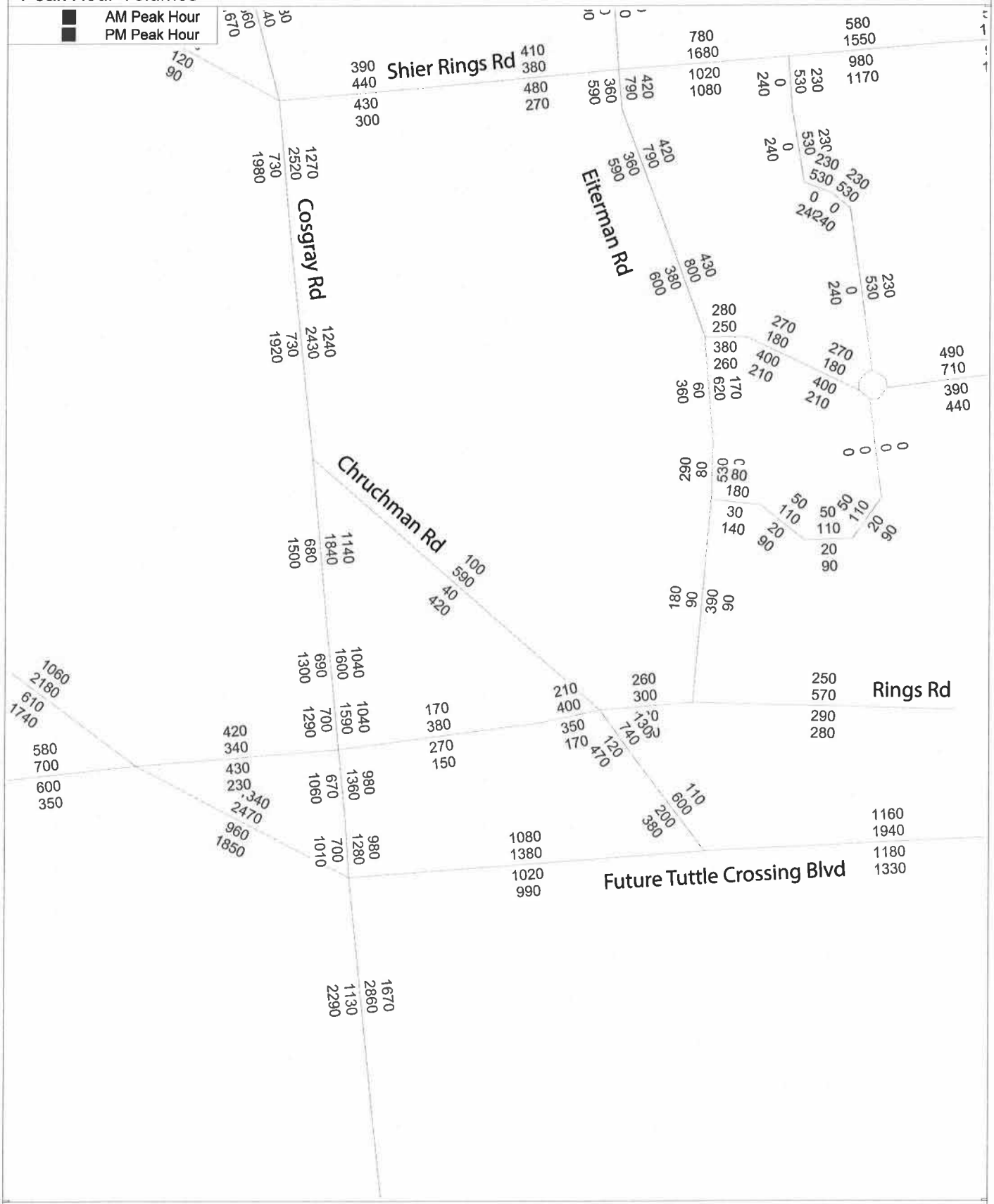
Growth Rate Calculation (2008 to 2013)
Avery/Ring - Cosgray/Rings Average

$$G = \frac{F-E}{EN}$$

F= 4793 Vehicles/Hour in Year 2008
E= 4108 Vehicles/Hour in Year 2002
N= 5 Years

G= 3.3% per year

Dublin Travel Demand Model, Year 2030 Output
Peak Hour Volumes

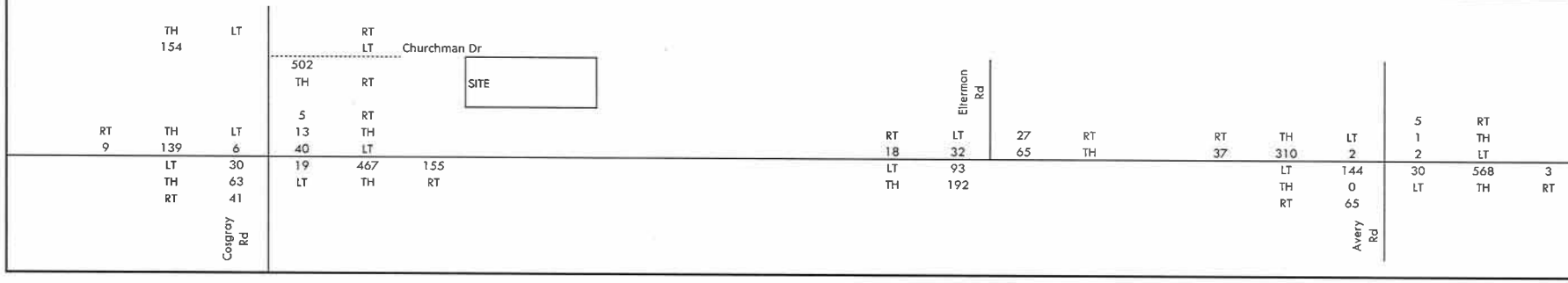


11/19/2014
S:\Travel Demand Modeling\DublinModel\Base\CommPlanNetworkChangeandTODUpdate\plot.net

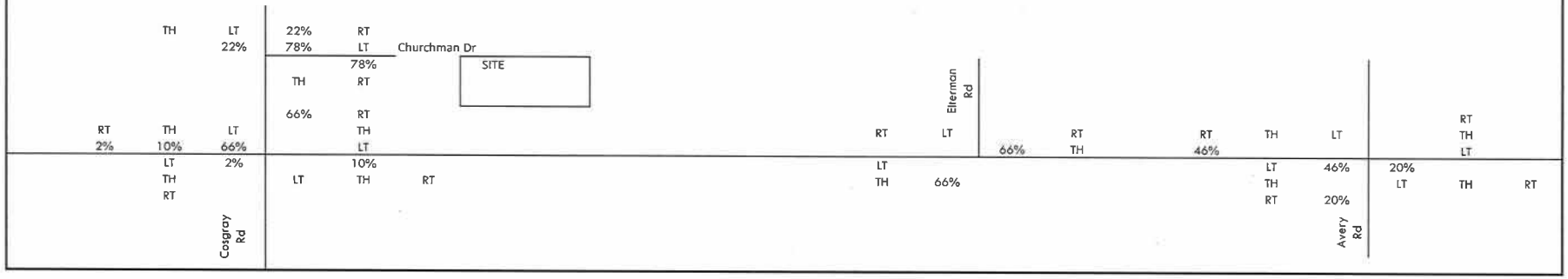
Liggett Tract
Traffic Impact Study
Trip Generation Calculations
Institute of Transportation Engineers, 9th Edition

Land Use	Square Feet or Units	ITE Code	Time Period	ITE Formula	Total Trips	Trips Entering	Trips Exiting
Single Family - Detached	141 units	210	ADT	Ln(T)=0.92Ln(x)+2.72	1,442	721	721
			AM Peak	T=0.70(x)+9.74	108	27	81
			PM Peak	Ln(T)=0.90Ln(x)+0.51	143	90	53

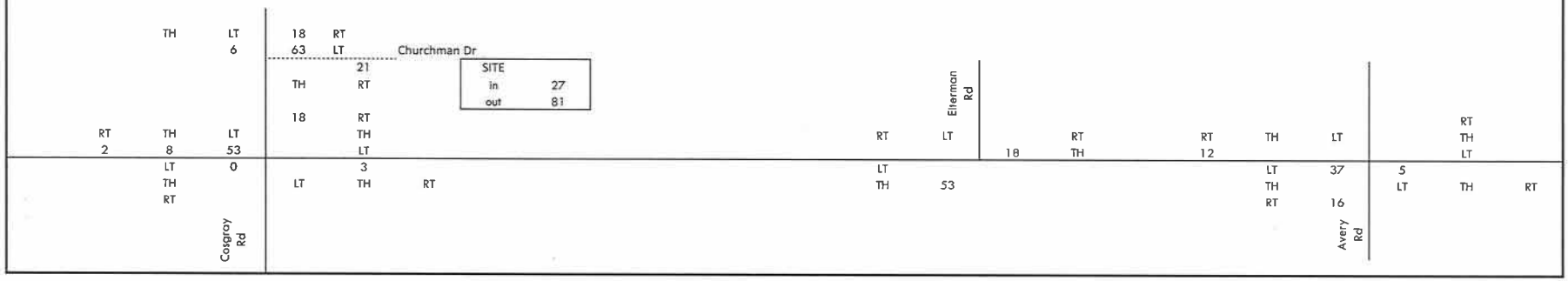
2013 Count Volumes — **AM Peak Hour A**



Site trip distribution — **AM Peak Hour B**

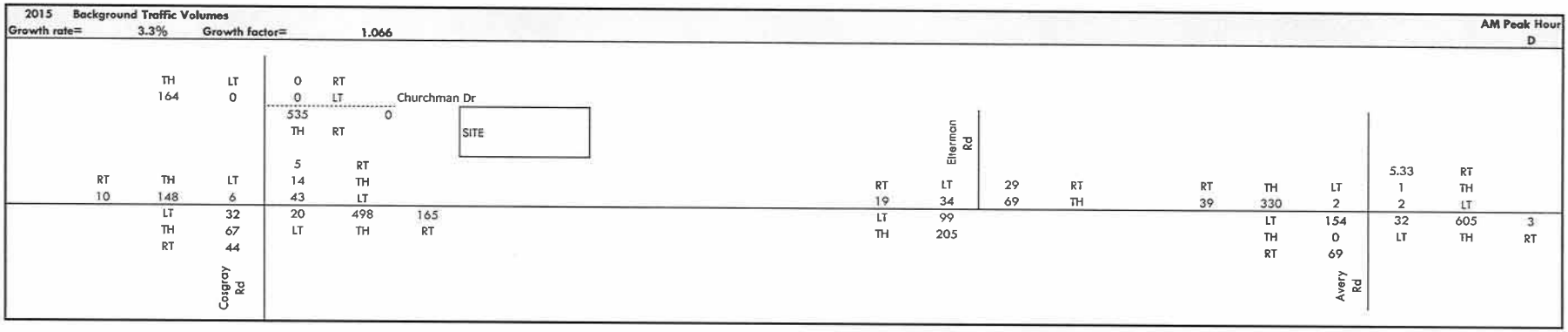


Site trip assignment — **AM Peak Hour C**

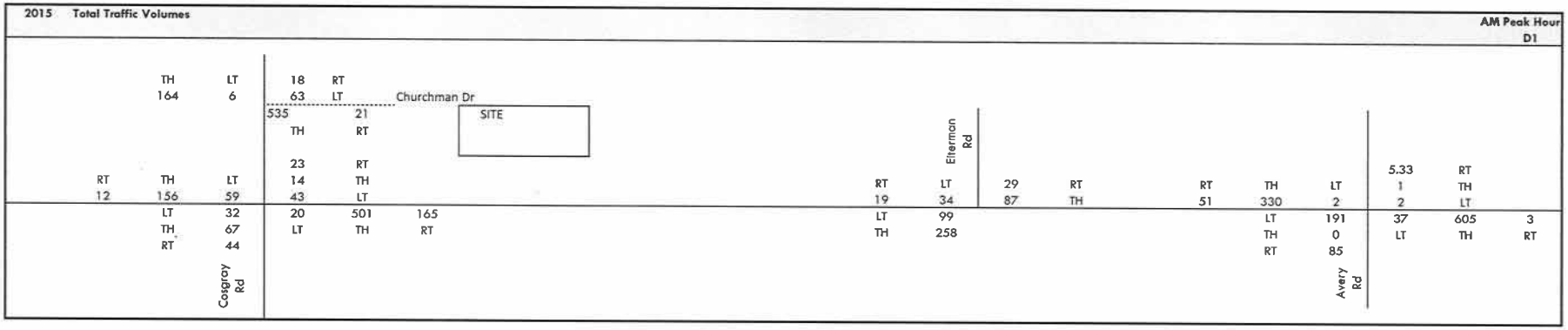


2015 Background Traffic Volumes — **AM Peak Hour**

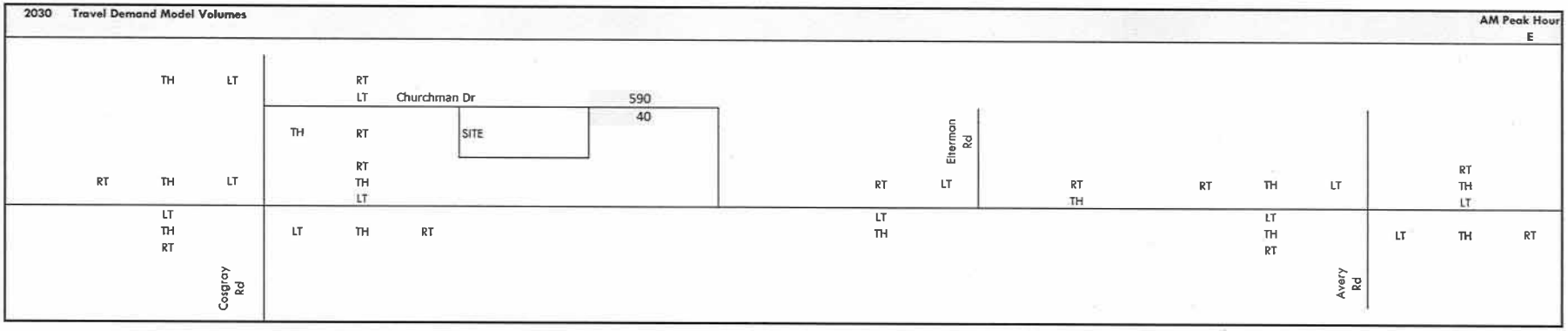
Growth rate= 3.3% **Growth factor=** 1.066 — **D**



2015 Total Traffic Volumes — **AM Peak Hour D1**



2030 Travel Demand Model Volumes — **AM Peak Hour** — **E**

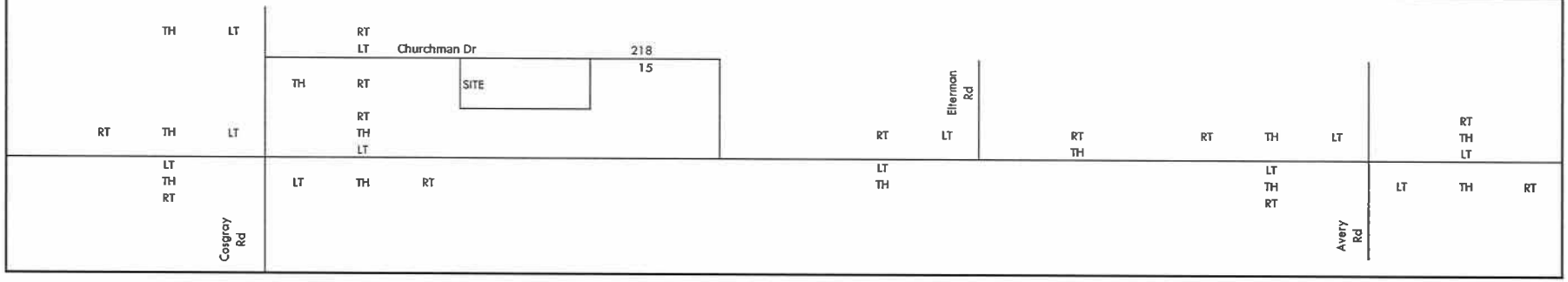


2016 Travel Demand Model Volumes

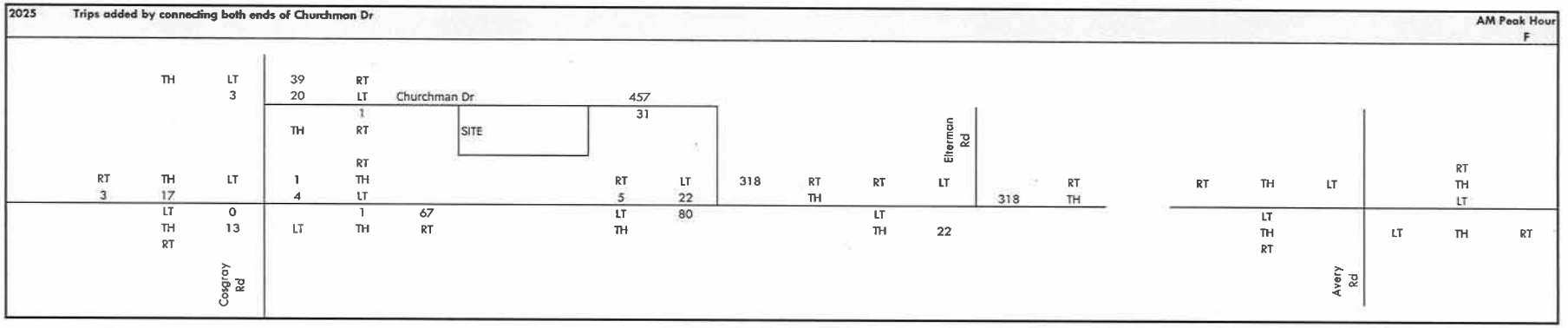
Based on 37% built of planned development on Churchman Drive

AM Peak Hour

E1



2025 **Trips added by connecting both ends of Churchman Dr** **AM Peak Hour F**



2025 Volume calculation at Rings & Avery — **AM Peak Hour** — **G**

2030 Model
(Plate A of Avondale Woods TIS)

					92	RT														
	RT	TH	LT		20	TH														
Rings	428	722	9		38	LT														
		LT	333		352	2290	29													
		TH	52		LT	TH	RT													
		RT	135																	
			Avery																	

2013 Background (in 5300 TIS)

	RT	TH	LT																	
Rings	40	268	1																	
		LT	210																	
		TH	1																	
		RT	75																	
			Avery																	

					5	RT														
					1	TH														
					2	LT														
					33	561	2													
					LT	TH	RT													

Growth rate

															102.4%	RT				
	RT	TH	LT												111.8%	TH				
Rings	57.1%	10.0%	47.1%												105.9%	LT				
		LT	3.4%												56.9%	18.1%	79.4%			
		TH	300.0%												LT	TH	RT			
		RT	4.7%																	
			Avery Rd																	

2025 Volume calculation at Rings & Avery — **AM Peak Hour G1**

2025 Background
(Trips of Lare Tract included)

	RT	TH	LT
Rings	314	590	7
		LT	296
		TH	37
		RT	117
			Avery

66	RT	
14	TH	
27	LT	
258	1779	21
LT	TH	RT

Site trips of Avondale Woods and 5300 Site
(Plates K & H of Avondale Woods TIS)

	RT	TH	LT
Rings	0	60	0
		LT	0
		TH	0
		RT	10
			Avery

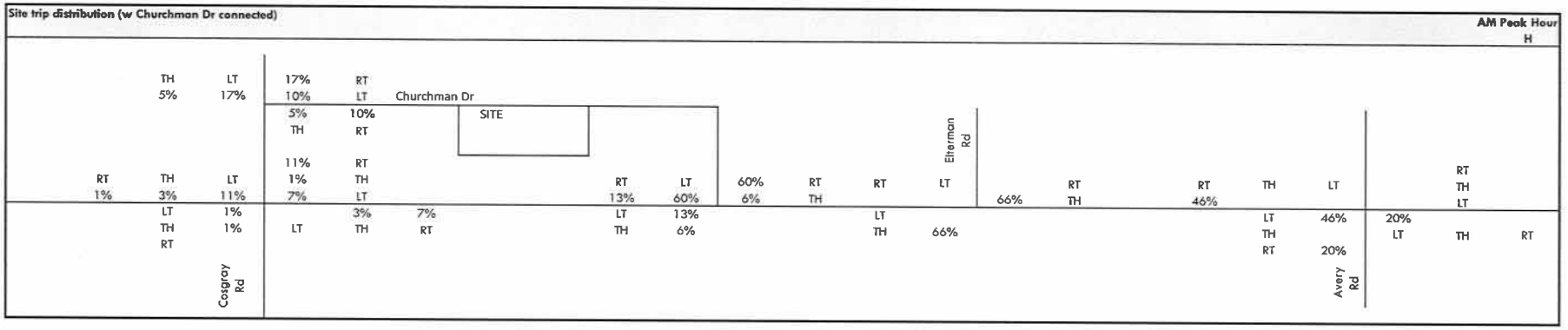
0	RT	
0	TH	
2	LT	
17	107	2
LT	TH	RT

2025 Full Build

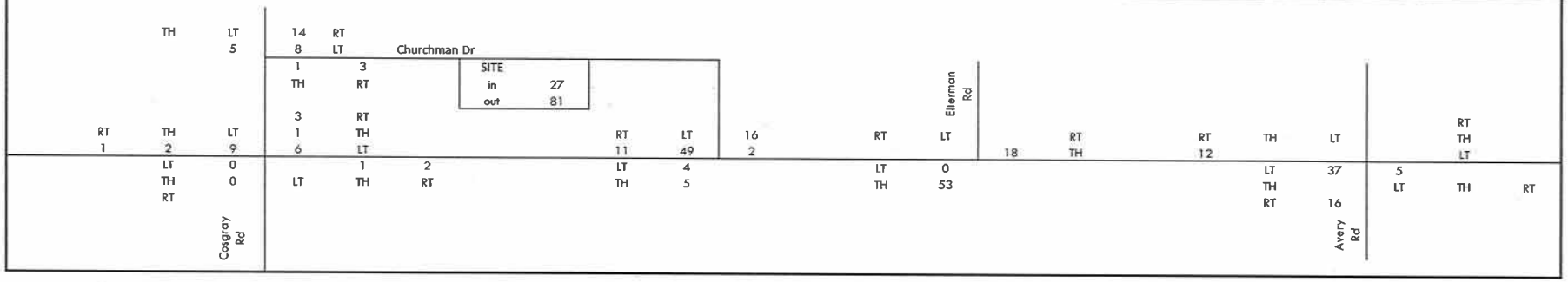
	RT	TH	LT
Rings	314	650	7
		LT	296
		TH	37
		RT	127
			Avery Rd

66	RT	
14	TH	
29	LT	
275	1886	23
LT	TH	RT

Site trip distribution (w Churchman Dr connected) **AM Peak Hour**



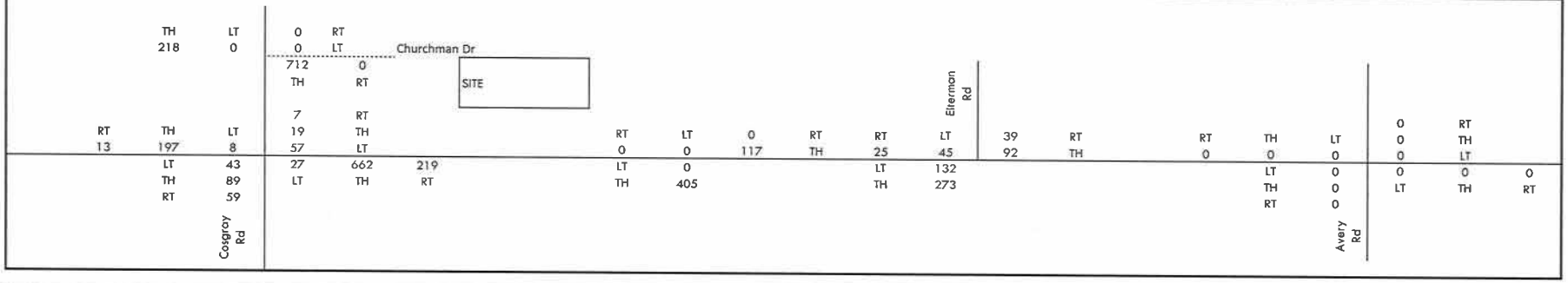
Site trip assignment (w Churchman Dr connected) — **AM Peak Hour H1**



2025 Background Traffic Volumes w/o Churchman Dr connected)

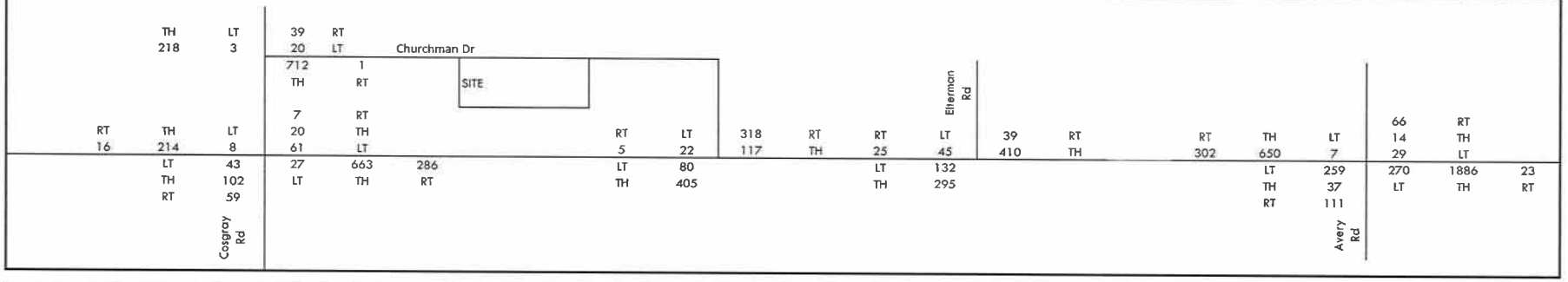
Growth rate= 3.3% Growth factor= 1.33

AM Peak Hour
I



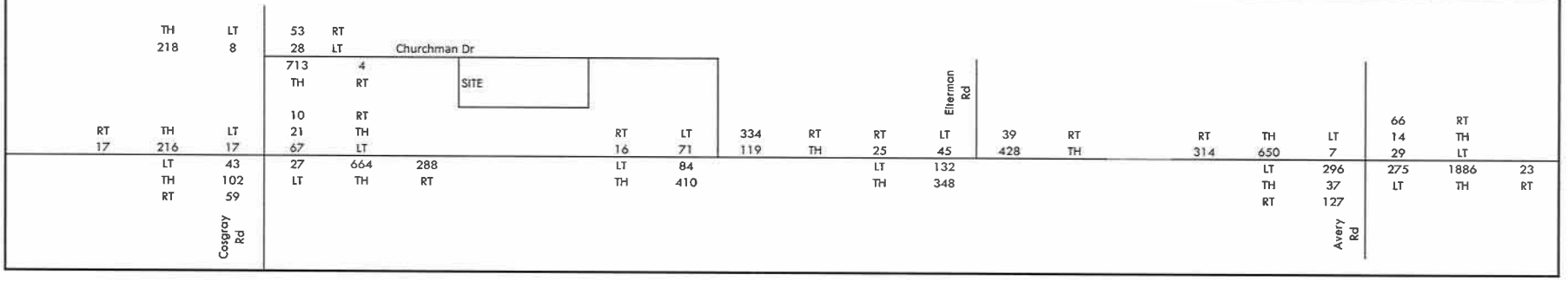
2025 Background Traffic Volumes w/ Churchman Dr connected)

AM Peak Hour
J=I+F (except Avery Rd inter)



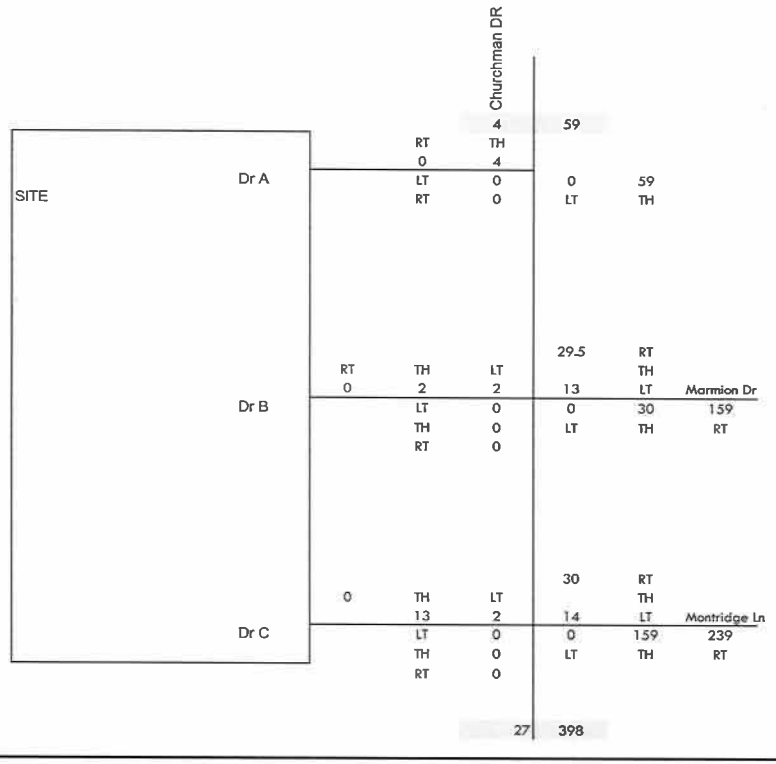
2025 Full Build Traffic Volumes w/ Churchman Dr connected)

AM Peak Hour
K=J+H1



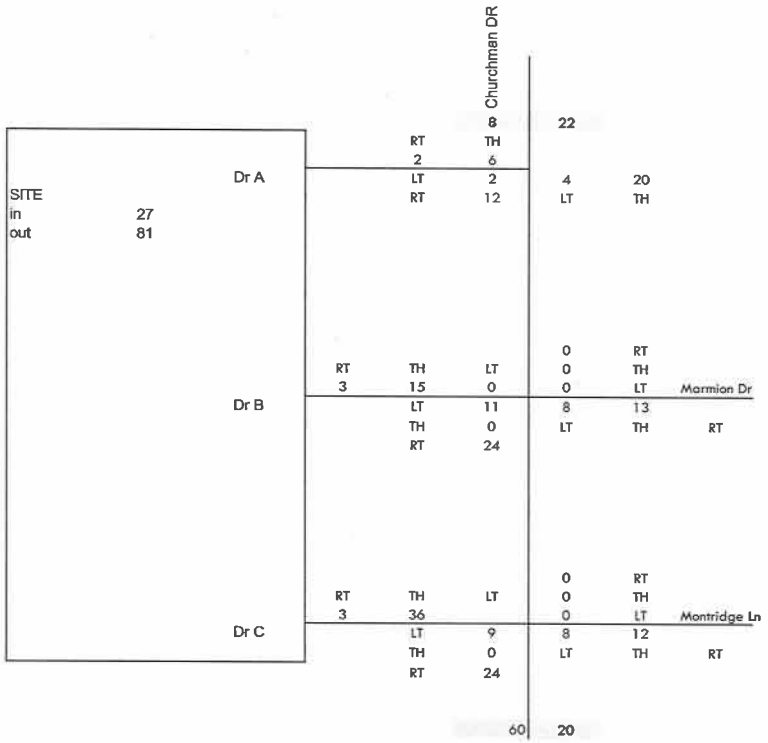
2025 **Background Trips added by connecting both ends of Churchman Dr** **AM Peak Hour**

L



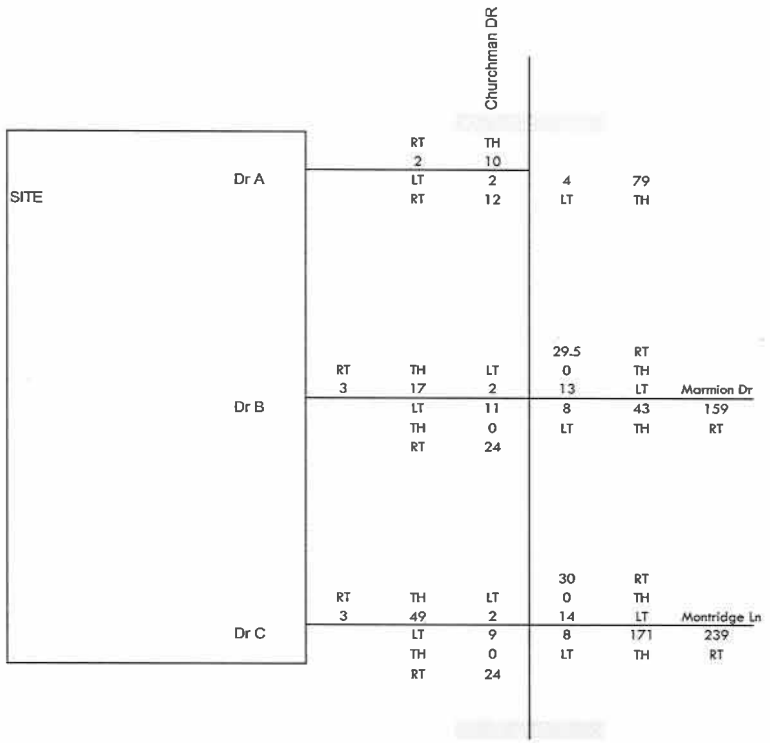
Site trip assignment (w Churchman Dr connected)

AM Peak Hour
M

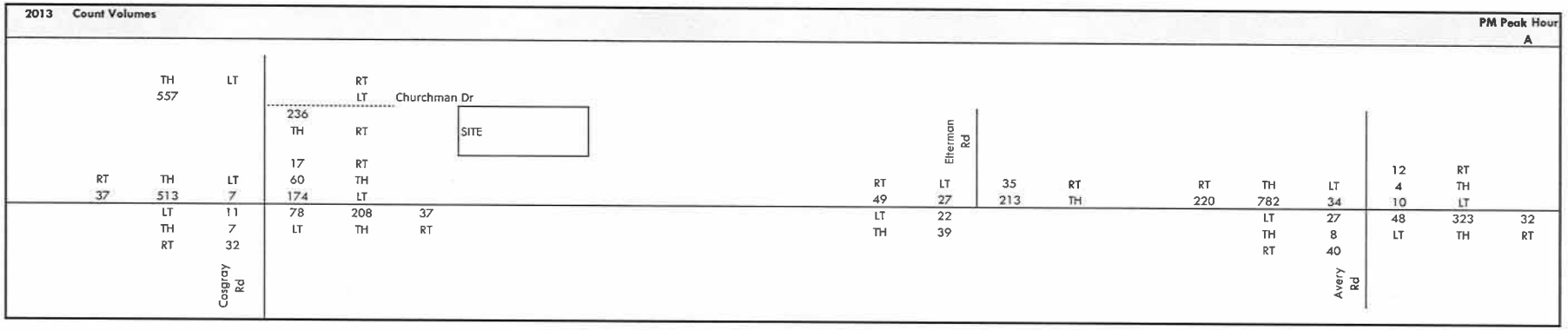


2025 Full Build Traffic Volumes w/ Churchman Dr connected)

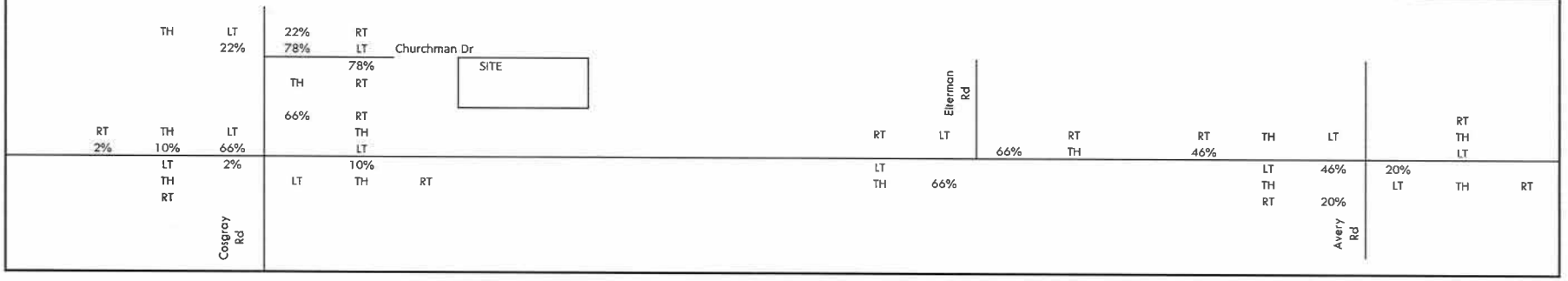
AM Peak Hour
N



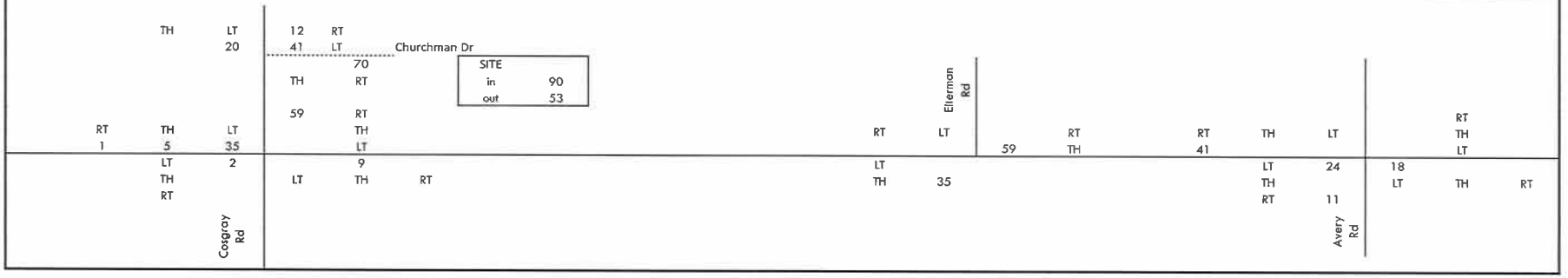
2013 Count Volumes — **PM Peak Hour A**



Site trip distribution — **PM Peak Hour B**

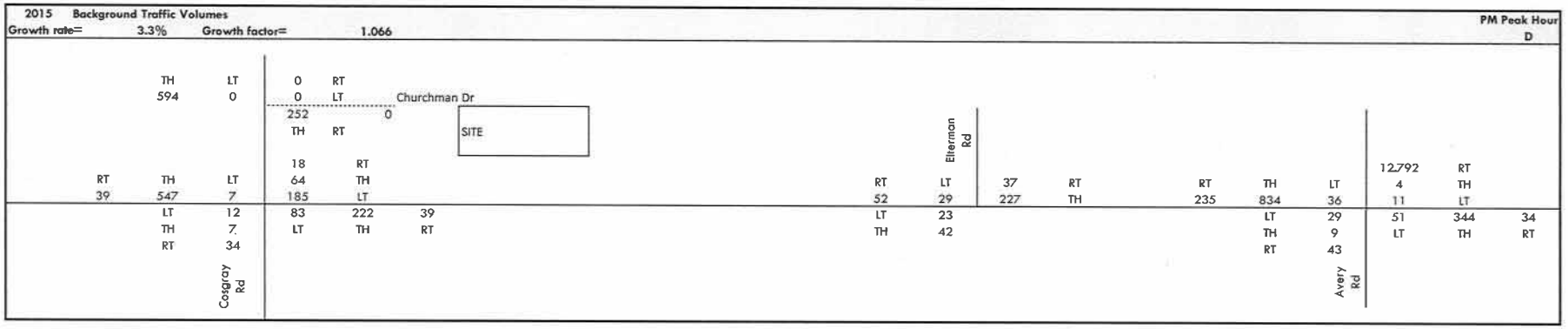


Site trip assignment — **PM Peak Hour C**

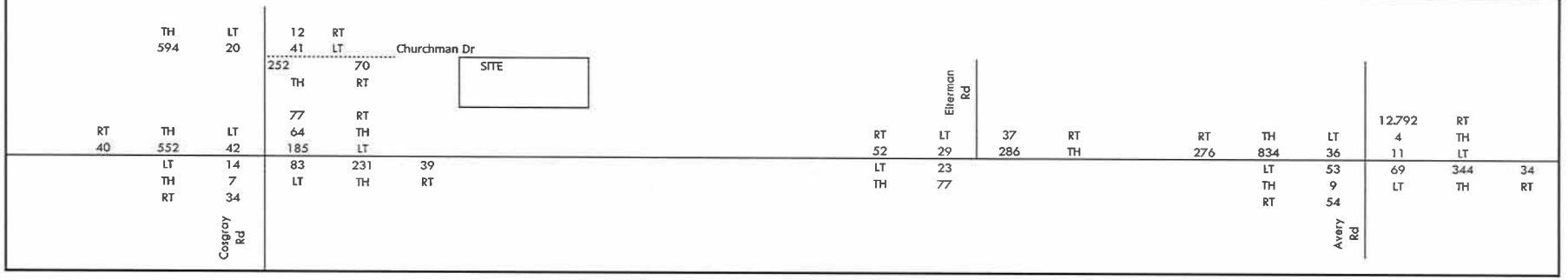


2015 Background Traffic Volumes — **PM Peak Hour**

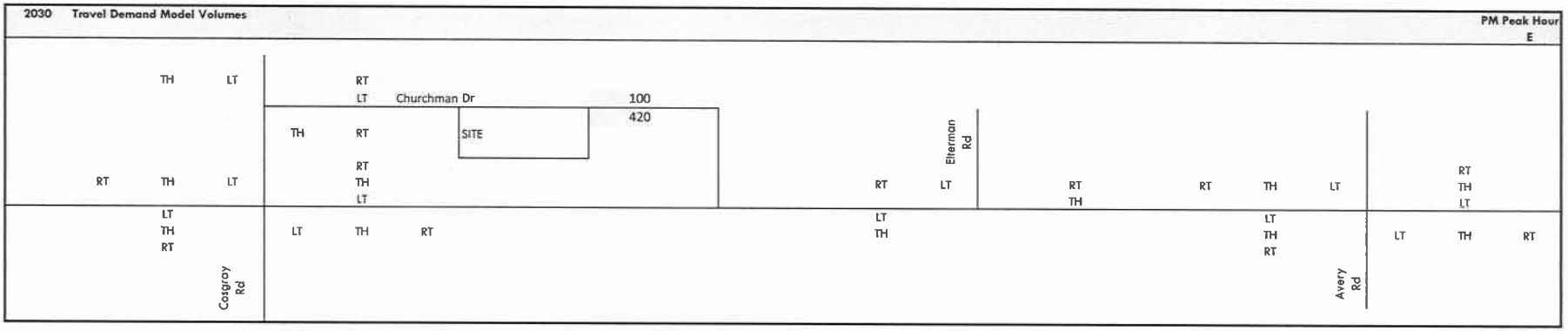
Growth rate= 3.3% Growth factor= 1.066 D



2015 Total Traffic Volumes — **PM Peak Hour D1**

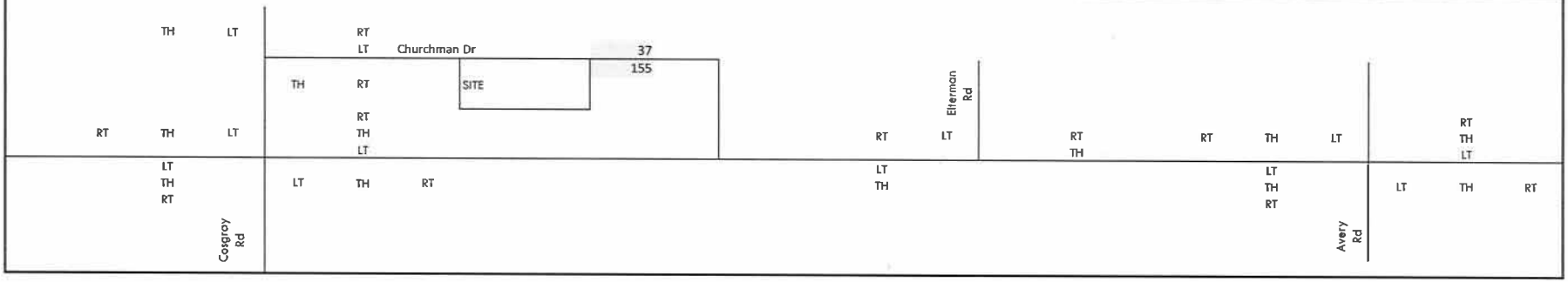


2030 Travel Demand Model Volumes — **PM Peak Hour E**



2016 Travel Demand Model Volumes
Based on 37% built of planned development on Churchman Drive

PM Peak Hour
E1



2025	Trips added by connecting both ends of Churchman Dr																					PM Peak Hour F
		TH	LT	7	RT																	
			28	3	LT	Churchman Dr				78												
					14					325												
				TH	RT		SITE															
					RT																	
	RT	TH	LT	10	TH				RT	LT	54	RT	RT	LT		RT			RT	TH	LT	
	1	2		47	LT				57	226		TH			54	TH						
		LT	2		12	12			LT	14				LT								
		TH	2	LT	TH	RT			TH					TH	226				LT	TH	RT	
		RT																				
			Cosgray Rd															Avery Rd				

Volume calculation at Rings & Avery — **PM Peak Hour** — **G**

2030 Model
(Plate A of Avondale Woods TIS)

					60	RT					7	RT					44.5%	RT	
	RT	TH	LT		17	TH			RT	TH	LT	2	TH			RT	TH	LT	
Rings	381	1539	45		43	LT		Rings	165	744	21	5	LT		Rings	7.7%	6.3%	6.7%	44.7%	LT	
		LT	251		135	1138	44		Rings	LT	42	42	345	23			LT	29.3%	13.0%	13.5%	5.4%
		TH	45		LT	TH	RT		Road	TH	7	LT	TH	RT			TH	31.9%	LT	TH	RT
		RT	274							RT	45						RT	29.9%			
				Avery							Avery							Avery Rd			

2013 Background (in 5300 TIS)

Growth rate

Volume calculation at Rings & Avery

PM Peak Hour
G1

2025 Background
(Trips of Lare Tract included)

	RT	TH	LT
Rings	317	1306	38
		LT	190
		TH	34
		RT	206
			Avery

Site trips of Avondale Woods and 5300 Site
(Plates K & H of Avondale Woods TIS)

			44	RT		
			13	TH		
			32	LT		
			108	904	38	
			LT	TH	RT	

	RT	TH	LT
Rings	0	189	0
		LT	0
		TH	0
		RT	33
			Avery

			0	RT	
			0	TH	
			6	LT	
			28	153	6
			LT	TH	RT

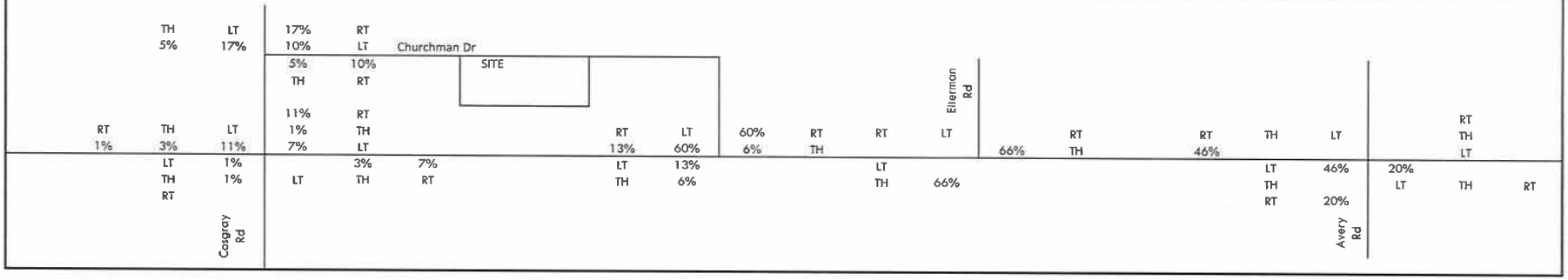
2025 Full Build

	RT	TH	LT
Rings	317	1495	38
		LT	190
		TH	34
		RT	239
			Avery Rd

			44	RT	
			13	TH	
			38	LT	
			136	1057	44
			LT	TH	RT

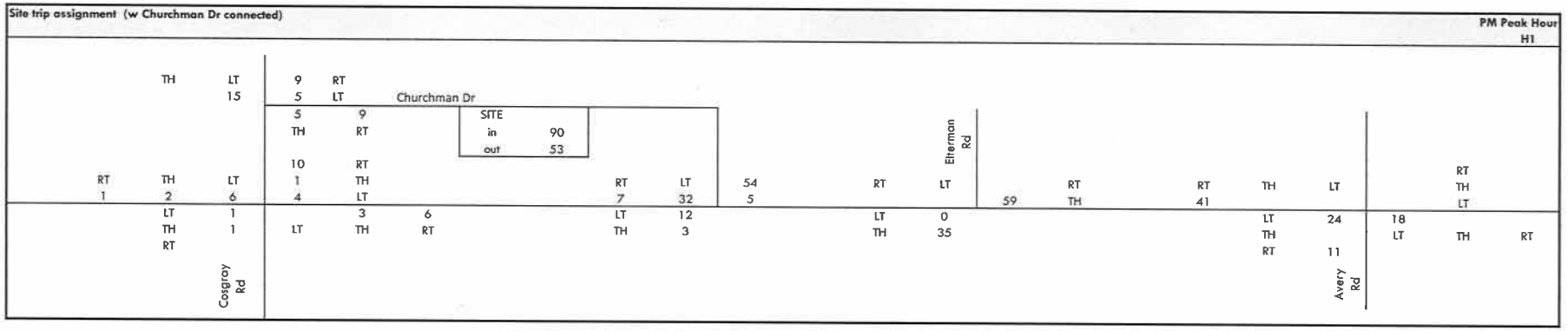
Site trip distribution (w Churchman Dr connected)

PM Peak Hour
H



Site trip assignment (w Churchman Dr connected)

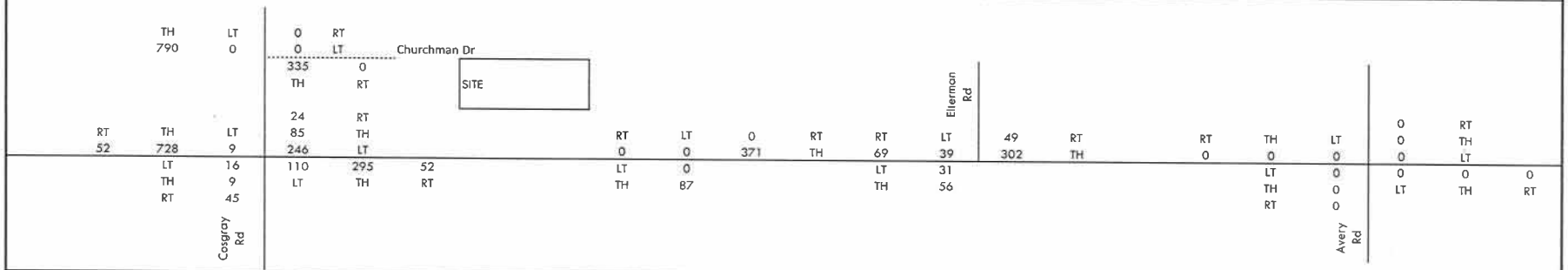
PM Peak Hour
H1



2025 Background Traffic Volumes w/o Churchman Dr connected)

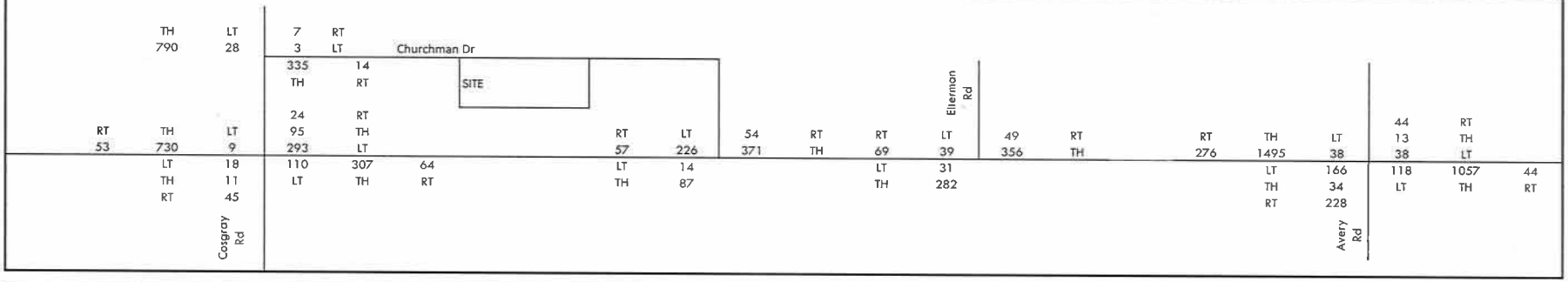
Growth rate= 3.3% Growth factor= 1.33

PM Peak Hour
I



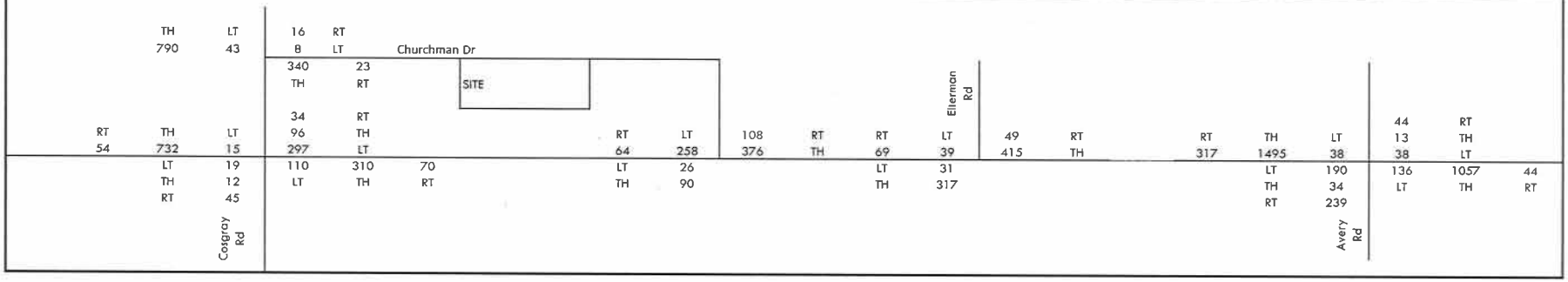
2025 Background Traffic Volumes w/ Churchman Dr connected)

PM Peak Hour
J=I+F (except Avery Rd inter)

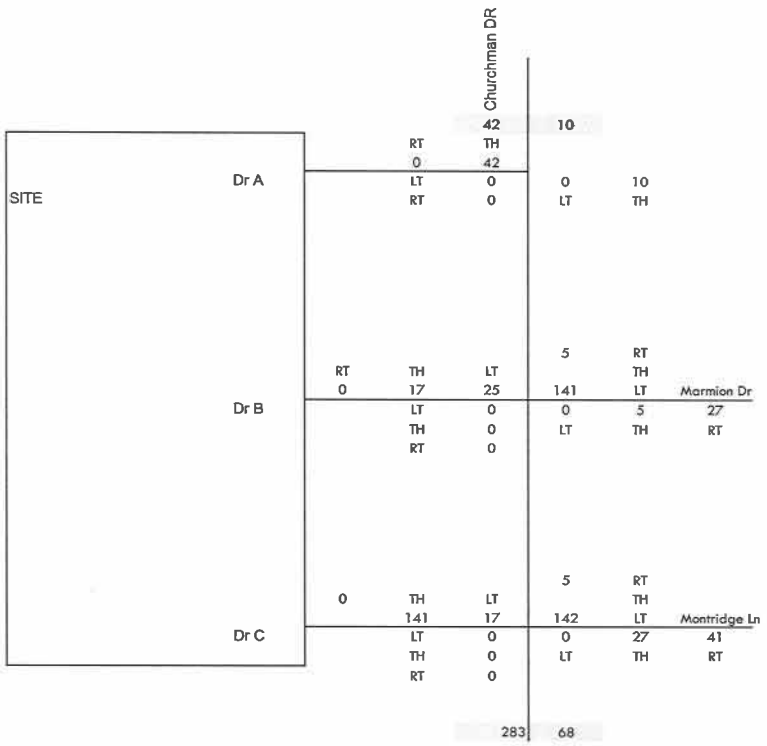


2025 Full Build Traffic Volumes w/ Churchman Dr connected)

PM Peak Hour
K=J+H1

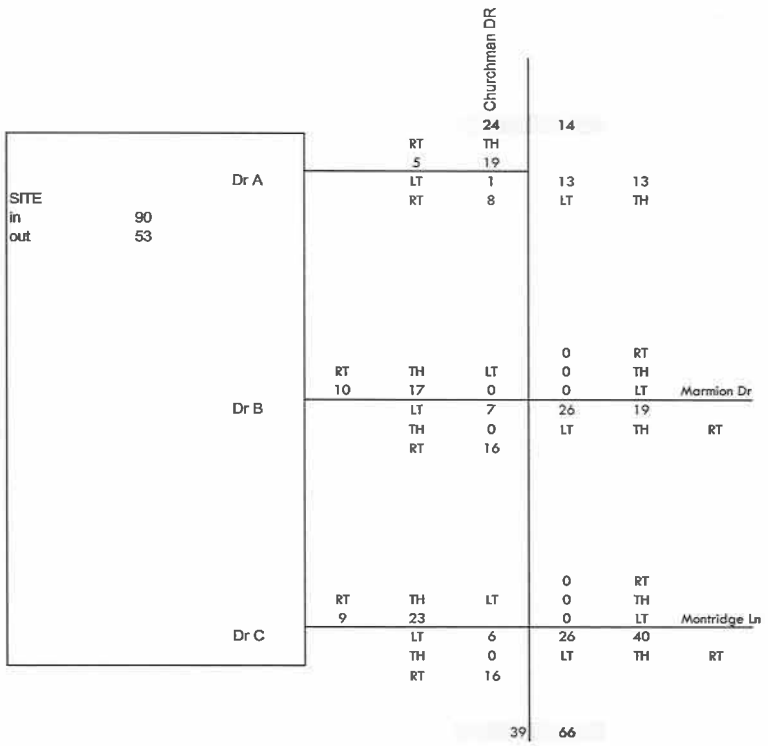


2025 Background Trips added by connecting both ends of Churchman Dr — PM Peak Hour



Site trip assignment (w Churchman Dr connected)

PM Peak Hour
M



2025 Full Build Traffic Volumes w/ Churchman Dr connected)

PM Peak Hour
N