ESTIMATED QUANTITIES FOR OAK GROVE OF GAHANNA

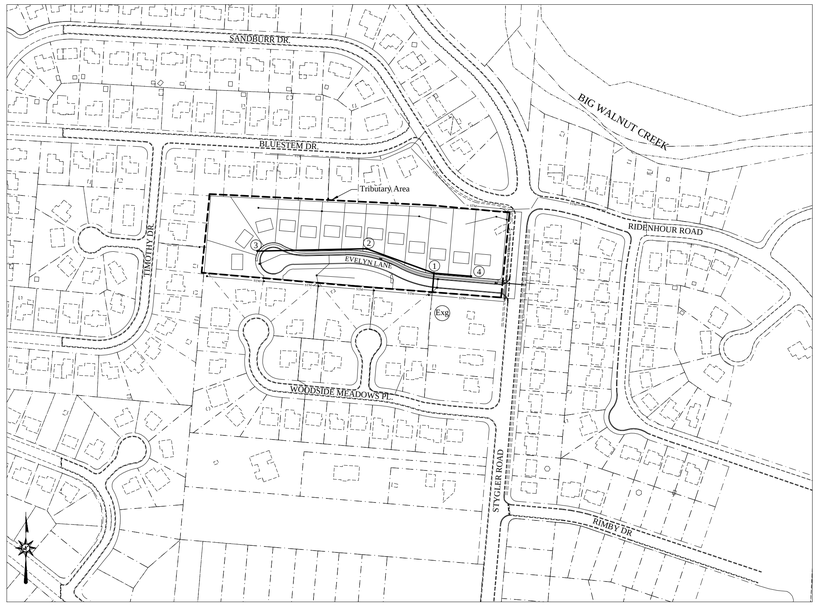
ITEM	DESCRIPTION	AMOUNT	UNIT
Excavation and Fill			
201	Clearing and Grubbing	1	LS
203	Excavation	1,885	CY
	Including Topsoil Excavation	660	CY
203	Embankment Placement (Evelyn Lane)	116	CY
203	Embankment at CB04	30	CY
	Spoil Placement and grading (Includes waste from pipe trenches)	3,335	CY
Evelyn Lane			
204	Subgrade Compaction and Test Rolling	2,177	SY
305	Concrete Base (7" Depth)(Roller Compacted Concrete)	403	CY
401	Asphalt Base Course (1.75" Course)	101	CY
404	Asphalt Finish Course (1.25" Course)	72	CY
608	Curb Ramps	2	EA
609	Curbs Standard, Reverse and Flat	1,497	LF
	Concrete	143	CY
	Aggregate	139	CY
	4" Underdrain	1,497	LF
511	Sidewalks - concrete (Contract only - not on lots)	2.6	CY
630	Signage (Traffic control and entrance sign)	4	EA
642	Traffic Paint	1	LS
614	Construction Traffic Control	1	LS
630	Entrance Sign Assembly	1	EA
1000	Street Lighting Materials and Installation (City of Gahanna Standard Drawings and specifications)	6	EA
Stormwater Pipe			
901	4" dia. COC 720.12 Corrugated Plastic Pipe w/ smooth interior	266	LF
901	8" dia. COC 720.12 Corrugated Plastic Pipe w/ smooth interior	210	LF
901	10" dia. COC 720.12 Corrugated Plastic Pipe w/ smooth interior	355	LF
901	12" dia. COC 720.12 Corrugated Plastic Pipe w/ smooth interior	85	LF
604	COC Type AA S-133A Catch Basins	3	EA
604	COC Type AA S-133A Catch Basins w/ Special Side Inlet	1	EA
604	COC Type S AA-133B Catch Basin w/ Special Side Inlet	1	EA
604	COC AA S-125A Curb Inlet	2	EA
604	Adjust Grade of Catch Basin CB1	1	EA
Bioretention Area at CB01			
	Planting Layer (Sand, soil and mulch)	109	CY
	Filter Sand (ASTM C33) as specified	14	CY
	Filter Aggregate (COC 703 No.8)	14	CY
	Gravel Layer (COC 703 No.57)	55	CY
207	Filter Fabric silt fence	210	LF
Bioretention Area at CB04			
	Planting Layer (Sand, Soil and mulch)	82	CY
	Filter Sand (ASTM C33) as specified	10	CY
	Filter Aggregate (COC 703 No.8)	10	CY
	Gravel Layer (COC 703 No.57)	41	CY
207	Filter Fabric silt fence	236	
Seeding, Mulching and Erosion Control			
207	Temporary Seeding and Mulching	2.40	AC
207	Filter Fabric silt Fence or Sediment	850	LF
207	Erosion Control and Street Cleaning	1	LS
207	Construction Entrance	1	EA
207	Concrete Cleanout	1	EA
207	Oil Change Pad	1	EA
207	Sediment Trap Assembly CB01	1	EA
207	Sediment Trap Assembly CB04	1	EA
207	Inlet Protection	9	EA
616	Dust Control	1	LS
659	Seeding and Mulching	2.40	AC
659	Commercial Fertilizer (10-10-10)	2,885	LBS
Sanitary Sewer			
901	8" Sewer Pipe	661	LF
604	Manholes AA S-120	4	EA
918	House Connections (to Easement limits) AA-S160	13	EA
Water Service Lines			
801	8" Water Main	763	LF
802	8" Gate Valve	1	EA
802	45 deg. Elbows	2	EA
803	8"x12" Tapping Sleeve	1	EA
805	Water Service Taps (up to Curb Stops)	13	EA
806	18" Casing Pipe	54	LF
809	Fire Hydrant (City of Gahanna)	3	EA

A BUSTEREVE LLC DEVELOPMENT

OAK GROVE SUBDIVISION

CONSTRUCTION PLANS

CITY OF GAHANNA, OHIO



0' 200' 400'

SCALE IN FEET

TRIBUTARY MAP

Ohio Utilities Protection Service
Call 811 before you dig

LEGEND

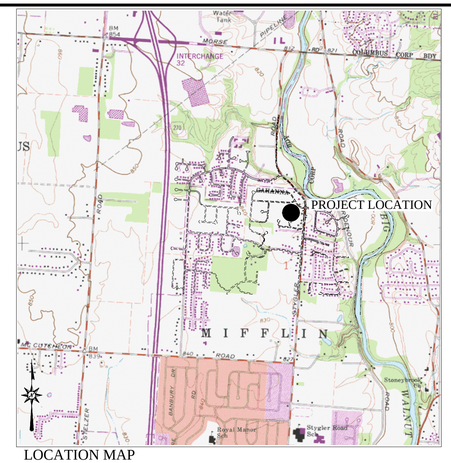
Existing Topographic Line
Proposed Topographic Line
Spot Elevation
Water Line
Drainage Channel
Tree and Treeline
Road Centerline
Property Line (offsite)
Property Line
Work Limits
Right of Way
Easement

UTILITY LINES
(Fine Line Indicates Existing)

Sanitary Sewer
Storm Sewer
Water Supply Line
Natural Gas Pipeline
Underground Electric Line
Underground Telephone Cable
Other Underground Utility
Exg. Fence
Proposed Fence

STRUCTURES

Manhole
Water Valve Box
Catch Basin
Power Pole
Telephone Pole
Lightpole
Fire Hydrant
Sign
Elec. Transformer
Telephone Jct. Box
Existing Monument
New Monument
Benchmark



LOCATION MAP

USGS 7.5' Quad Northeast Columbus, Ohio (Maptech, Inc.)
1"=2000'

BENCHMARKS

Vertical Datum is NAVD88.

TBM01 - 839.54 Top of west bolt of the top flange of a Fire Hydrant located at station 103+90, 20 feet right of Stygler Road centerline in front of 960 Stygler Road. Fire Hydrant is tagged with an aluminum marker 0361. Bolt is 2.0 feet above grade.

Franklin County Bench Mark *A 26* - 805.21 Top of Brass Plug on top of the southwest abutment of the bridge at the south entrance to the drive to Stonybrook United Methodist Church on Cherry Bottom Road, 0.05 miles north of U.S. 62, 46.3 feet west of the centerline of Cherry Bottom Road, 18.5 feet south of the centerlines of the entrance drive.

Basis of Bearings: GPS data corrected using the N.O.A.A., National Geodetic Service, *National Spatial Reference System* translated to State Plane Coordinates 3402 SOUTH OHIO (NAD83).

INDEX OF DRAWINGS

STANDARD DETAILS USED IN THESE DRAWINGS

INDEX	DESCRIPTION	INDEX	DESCRIPTION
G-25	TYPICAL HYDRANT DETAILS - HYDRANT TYPE "B"	L-6309B	TYPICAL TRENCH FOR WATER MAIN OUTSIDE OF PAVEMENT
SLD-1 TO 5	STREET LIGHTING - PEDESTAL LUMINAIRE	L-6309E	INFLUENCE OF PAVEMENT-BACKFILLING WITHIN ROW FOR WATER MAIN
AA-S102	TYPE "C" MANHOLE		
AA S-125A	CURB INLET	L-6310	BACKING FOR VERTICAL BENDS
AA S-133A	STANDARD CATCH BASIN (SMALL PIPE)	L-6311	BACKING FOR BENDS
AA S-149	TYPE I BEDDING FOR FLEXIBLE SEWER PIPE	L-6312	BACKING FOR TEES
		L-6316	COLUMBUS STANDARD HEAVY DUTY VALVE BOX
AA S-160	TYP. SANITARY HOUSE CONNECTION		
AA S-168	PRECAST PIPE HEADWALL	L-6324	CASING PIPE, SPACERS AND END SEALS
1441	PAVEMENT AND UTILITY CUT REPAIR STANDARDS	L-6640	ALLOWABLE LEAKAGE TABLE
		L-7001	THRUST BLOCK DETAIL END OF PIPE
L-1003	POLYETHYLENE ENCASEMENT FOR D.I. PIPE	L-7002	DRAIN TILE REPLACEMENT
		L-9901	CURB BOX INSTALLATION
L-1004	POLYETHYLENE ENCASEMENT FOR SERVICE TAPS ETC.	2185	STREET NAME SIGN (ADAPT FOR GAHANNA STANDARDS)
L-6306	CONCRETE VALVE SUPPORTS	2319	CURB RAMP TYPE A
L-6309A	TYPICAL TRENCH FOR WATER MAIN UNDER PAVEMENT		

CITY OF GAHANNA APPROVAL

The signatures below signify only concurrence with the purpose and general location of the project. All technical details remain the responsibility of the Engineer preparing the plans.

City Engineer, City of Gahanna — Date

Water Resource Engineer, City f Gahanna — Date

Superintendent, Division of Streets, City of Gahanna — Date

Director of Public Service, City of Gahanna — Date

Director of Finance, City of Gahanna — Date

Mayor, City of Gahanna — Date

CITY OF COLUMBUS APPROVAL

Approval on the part of the City of Columbus is given pursuant to the provisions of the Sewer Service Agreement, dated September 27, 1967, with the City of Gahanna and all subsequent amendments thereof. The sanitary sewer plans meets or exceeds the City of Columbus Design Standards (including per capita flow, Peak Factor and I/I allowance) and Material Specifications.

Administrator, Division of Sewerage and Drainage, City of Columbus — Date

Director, Department of Public Utilities, City of Columbus — Date

REVISIONS:

BUSTEREVE LLC DEVELOPMENT

COVER SHEET

OAK GROVE OF GAHANNA

4185 STYGLER ROAD

FRANKLIN COUNTY, OHIO

GAHANNA

STATE OF OHIO
CASEY C. ELLIOTT
E-049721
REGISTERED
PROFESSIONAL ENGINEER

Approved: Casey Elliott
PE 04972 PS 7759
Date: 03/29/2014

CASEY C. ELLIOTT
PROFESSIONAL ENGINEER
4185 STYGLER ROAD
LONDON, OHIO 43140
(740)852-1300 FAX: (740)852-2212

Contract: 13107

S1

GENERAL NOTES

The City of Gahanna requirements and standards and the City of Columbus Construction and Material Specifications (CMS), 2012 edition, including all supplements thereto, shall govern the construction items in this project unless otherwise noted.

OWNERSHIP OF PLANS: The site plans and design information for this project are the property of the Engineer. Any change in the sealed plans without the approval of the Engineer will remove all liability for execution of this project from the Engineer. If the plans or the design are altered without the approval of the Engineer, no part of the plans will be considered sealed or approved by the Engineer.

These plans and construction details are copyrighted by the Engineer may not be used for any other Project at this site or any other site without the written consent of the Engineer.

The Engineer will incur no liability for these plans until the plans have been reviewed and approved by the reviewing agencies.

PRE-CONSTRUCTION CONFERENCE: The Contractor shall schedule a pre-construction conference with the City of Gahanna a minimum of five business days prior to any construction activities including clearing, delivery of equipment or material or construction office. Attendees shall include the Contractor, Developer, Testing Agency, City Engineer and Design Engineer

The Contractor shall notify the City of Gahanna at least three business days prior to commencing work.

STANDARD DRAWINGS: These plans are not complete without a set of the specified Standard Drawings by the City of Gahanna and the City of Columbus. Copies are available at the Office of the City Engineer.

PERMITS: The Contractor shall obtain all necessary permits.

EXISTING UTILITIES: The information shown concerning existing utilities is not represented, warranted or guaranteed to be complete or accurate. It is the Contractor's responsibility to physically locate and verify, in the field, all utility locations and elevations, whether shown on this plan or not prior to the beginning of his construction operations. The Contractor shall support, protect, and restore all existing utilities and their associated items. The cost of this work shall be included in the price bid for the various items.

The Contractor shall notify all utility owners, in accordance with Section 153.64, Ohio Revised Code, at least forty-eight (48) hours prior to the beginning of any work, coordinate his work with them, and keep the utility owners apprised of his schedule and requirements until all work is completed. The Contractor shall provide the Engineer with evidence of having notified the utilities and providing them with his work schedule prior to beginning any work.

Notice shall be given to the Ohio Utilities Protection Service (telephone 800-362-2764), for the member utilities at least 48 hours prior to performing any construction activities.

Member Utilities in the area include:

Water, Sanitary Sewer and Storm Sewer Facilities:		
	City of Gahanna	614-342-4050
	City of Columbus	614-645-8156
Electric Power:	AEP	
Telephone:	AT&T	
Cable:	Time Warner Cable	
	WOW Cable	
Natural Gas	Columbia Gas	

SAFETY OF CONSTRUCTION: The Contractor and Sub-Contractor shall be solely responsible for all OSHA, federal, state, and local safety requirements, together with exercising precautions at all times for the protection of persons (including employees) and property. It is also the sole responsibility of the Contractor and Sub-Contractor to initiate, maintain and supervise all safety requirements, precautions and programs in connection with the work.

MISCELLANEOUS WORK: No extra compensation shall be paid to the Contractor for compliance with any of the requirements indicated on the plans. All payments shall be deemed to be included in the various items, as bid upon, unless otherwise specifically provided.

SURPLUS EXCAVATION: The Contractor shall dispose of all excess excavation offsite. Topsoil may be stockpiled and reused in areas to be grassed at a depth of at least 4" free of debris and rocks larger than 2".

This site is designed to be balanced in terms of earth excavation and fill. Spoil from Evelyn drive, the stormwater detention basins and the public utilities is to be placed as shown on the plans, with at least 4" of topsoil dressed on top. This will leave sufficient room for basement excavation on each lot.

The cost of spoil placement and grading is to be included under excavation and fill.

CLEARING AND GRUBBING

DEBRIS: All debris material shall be disposed of in a manner suitable to the Inspectors. On site burial will be confined to an area designated by the Owner. The preferred disposal method is removal from the site to an approved disposal facility.

Clearing and Grubbing includes the removal of three large trees marked on Lots 1 and 2 and the removal of selected dead and fallen trees at the west end of the project. No grubbing shall be performed in the wooded area on the west and north sides of the site. Stumps shall remain in these areas.

Existing trees are to be preserved and protected. No construction traffic is permitted within the drip edge of existing trees except where indicated on the plans.

PROOF ROLLING: Proof rolling shall be performed on all points in the subgrade of Evelyn Lane by COC 204.

CURBS: The curbs in this project are atypical. The west part of Evelyn Lane drains to the south into he detention basin at Catch Basin 04. This requires the north curb to be a reverse curb and the south curb to a straight curb. The curb in the cul-de-sac transitions from a reverse curb to a conventional curb that ends in a straight curb to release the gutter flow into a grass swale that drains into the detention basin.

Curbs will be marked at the time of construction with a formed "W", "S" or "G" where a water service, sanitary sewer service or gas service crosses the curb.

SIDEWALKS: Sidewalks are shown along the north side of Evelyn Drive. The only section of sidewalk in this project is the replacement of sidewalks and curb ramps at the intersection of Evelyn Drive and Stygler Road. The remaining sidewalk will be installed by the house contractors.

STREET LIGHTING: Electrical installation, material and equipment is to meet the current NEC for exterior installations. Standard electrical specifications and standard construction drawings for street lighting for the City of Gahanna shall apply. The street light pole bass shall meet the SLD-3 bolt pattern by standard/pedestal manufacturer. Cable in duct shall be 1" Cablecon or Schedule 40 approved equivalent. Location of the lighting control site is to be coordinated with AEP.

STORM SEWERS: Reinforced concrete pipe (COC 706.02) may be substituted under proposed pavement. Flexible pipe shall be tested per COC 901.21 at the Contractor's expense under Item 901.

The Riprap used in the Sediment Traps may be recycled as protection for the Headwall HW06 and as protection around the detention basin outlets.

No. 57 aggregate that is not contaminated with sediment may be recycled as the base layer in the Bioretention Cells.

FIELD TILE and SUBSURFACE DRAINS: Where field tile and subsurface drains are detected during construction, the existing subsurface drains shall be repaired if damaged and connected to the storm sewer system at catch basins or detention basin structures.

BIORETENTION CELLS: Bioretention cells permit runoff water to seep into the surface of the cell, percolate through a filter media, a layer of sand, a layer of "pea gravel" into a layer of aggregate where the water either infiltrates into the soil or flow through a subsurface collector drain and outlet into a catch basin.

The Bioretention Cells are located near the outlet structures to the detention basins for the project. The detention basins will retain the Water Quality Volume (WQv) below the first stage outlet windows in the control structures. The WQv percolates into the Bioretention Cell and drains the basin in 12 to 48 hours.

It is critical to protect the Bioretention Cells from sediment during construction and site stabilization. The Bioretention Cells are the last items installed prior to seeding and mulching and shall be protected from sediment laden runoff water.

Bioretention Cells that are clogged with sediment prior to acceptance of the project by the City shall be repaired by the Contractor. Repair shall consist of removing and replacing clogged filter media. Sand, and gravel.

It is likely that only a few inches of the filter media will need to be replaced but the seeding and mulching will need to be repaired and clogged media removed from the detention basin.

STORMWATER CONNECTIONS: *Floor drains, roof drains, foundation drains, downspout drains, storm sewers, ground water drains and all other clean water connections to the sanitary sewer are prohibited.*

SANITARY SEWERS: The Contractor shall excavate and expose the existing end of the 8" sanitary sewer at Station 0+53 and verify the pipe slope from the downstream manhole to the existing end of pipe. If the pipe slope is different from that shown on the plans, the Engineer shall develop shop drawings adjusting the elevation of Manhole 1 and the pipe slopes form MH1 to MH4 and from MH1 to MH2. If the pipe slope does not meet minimum grade requirements (0.40% for 8" diameter pipe) then the Engineer and City Engineer will determine if a change order is needed to (1) correct the grade of the existing pipe or (2) add a manhole at the end of the existing pipe.

WATER MAINS: Water Mains shall be C900, Class 150 pipe. All fittings and bends shall be backed with concrete as specified or as directed. Joint restraints may be used in deflections as an alternative. Where proposed mains cross existing streets, the backfill shall be Item 304 Aggregate Base. As an alternative, the Contractor may use Item 613, Flowable Controlled Density Fill at the discretion of the Inspector.

The plans provide for horizontal boring or jacking of a casing pipe across Stygler Road in lieu of open excavation. If open excavation is chosen, the Traffic Maintenance Plan will need to be revised.

Fire Hydrants shall meet the City of Gahanna specifications and Standard Drawing G-25 and City of Columbus Item 809 and Standard Drawing L-6409. Fire Hydrants shall be provided with a Stortz Fitting.

Curb Boxes shall be located 0.5 feet from the property line unless otherwise directed by the City Engineer. The installation details shall otherwise meet City of Columbus L-9901.

WATER MAIN TESTING: The Contractor shall pressure test all water mains per COC 801.12 and submit results to the City of Gahanna. Pressure testing and chlorination shall meet AWWA C-600 and AWWA C651 (See COC 801.12). The Contractor shall submit two copies of the pressure test results and a letter requesting disinfection to the City of Columbus. The cost of testing and disinfection is considered part of Item 801.

Separation of water mains and sanitary or storm sewers shall conform to the Ten States Standards (18" vertical separation and 10 feet horizontal separation).

DUST CONTROL: The contractor shall furnish and apply water and calcium chloride for dust control as directed by the engineer. The following contingency quantities have been included for dust control purposes:

MAINTENANCE OF TRAFFIC

TEMPORARY TRAFFIC CONTROL ITEMS

All temporary traffic control (TTC) devices shall be furnished, erected, maintained and removed by the Contractor in accordance with the Ohio Manual Of Uniform Traffic Control Devices For Construction And Maintenance Operations (Current Edition).

Construction operations shall NOT begin until all traffic control is in place and approved by the City of Gahanna.

The contractor shall give advance notification (written and verbally) to City of Gahanna, informing them of all upcoming traffic pattern changes.

TYPE OF CHANGE -ADVANCE NOTIFICATION NEEDED

Lane closures lasting 2 weeks or more 2 week notice

Lane closures of less than 2 weeks 3 day notice

This project will require a lane closure for less than 2 weeks.

The excavation of Evelyn Lane near Stygler Road shall be filled to pavement level with aggregate for a distance of 5 feet from the edge of pavement between the time it is excavated to the time it is paved.

A TTC Plan (TTCP) including pedestrian control shall be submitted at the pre-construction meeting or a minimum of ten (10) working days prior to beginning work. Copies of the approved TTCP shall be given to the Contractor and kept on site along with the Street Closure/Occupancy Permit.

Pedestrians shall be excluded form the construction area.

Steady-burning Type C lights shall be required on all barricades, drums, and similar traffic control devices in use at night. Only 42" reflectorized channelizing devices (cones) shall be permitted for nighttime work with the approval of the City of Gahanna per O.D.O.T. standards.

A flashing arrow panel (48" X 96"-Type C) shall be used in lane closures as per the Ohio Manual.

All trenches within the road right-of-way shall be backfilled or securely plated per City of Gahanna requirements during non-working hours. (Use City of Columbus General Policy on Steel Plate Usage dated 11/15/2006 and 2007 STD. DWG. 1441)

Access for pedestrian and vehicular traffic to all adjoining properties shall be maintained at all times. All traffic lanes shall be fully open to traffic from 6:00 to 9:00 A.M. and 4:00 to 6:00 P.M. One lane may be closed to traffic during working hours. Two-way traffic shall be maintained at all times.

Law Enforcement Officer(s) (L.E.O.) are not needed unless a hazard develops. If a hazard develops, an L.E.O. shall be assigned by the City of Gahanna Safety Director or Service Director at the Contractors' expense.

LEO is needed for interim traffic control if construction equipment must encroach on the open lanes at any time. The Contractor is not permitted to supply non LEO traffic control.

EXISTING PERMANENT TRAFFIC CONTROL ITEMS

Vehicular, pedestrian, and U.S. Mail service access to all adjoining properties shall be maintained at all times. When a parcel is served by only one driveway, the affected driveway must be constructed in stages and/or supplemented with Item 410 so that access is not disrupted. Short term closure of driveways will be permitted in accordance with the specification requirements for the protection of completed asphalt courses. It shall be the responsibility of the Contractor to coordinate construction activities with the City Engineer and with the owners of adjoining properties in advance of any operations which affect access. Notification shall be given to adjoining property owners a minimum of forty-eight (48) hours in advance of any operations affecting access.

Any other unforeseen impacts to traffic shall be immediately reported as they occur.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

OWNER: Bustereve LLC
Michael J. Anthony, agent
383 N. Front St., LL
Columbus, OH 43215

CONTRACTOR:

ENGINEER: Casey Elliott, PE
212 West High Street
London, Ohio 43140
PHONE: (740)852-1300
FAX: (740)852-2212

ON SITE CONTACT: Ed Minhinnick
4579 Poth Road
Whitehall, Ohio 43213
(614)332-4182

The conditions of the *NPDES Construction Storm Water General Permit OHC000004* shall be met during all stages of construction. The location and timing of all erosion and sediment control items shall be field adjusted to prevent significant impacts on receiving waters. Implementation of this storm water pollution prevention plan shall continue throughout the duration of the project or until such time that the upslope disturbed areas are stabilized.

Installation of sediment basins/dams, perimeter filter fabric fence, and ditch checks shall be concurrent with clearing and grubbing and/or grading operations.

All reasonable attempts should be made to minimize the total area of disturbed land.

This Erosion Control Plan has been prepared in compliance with provisions of the Federal Water Pollution Control Act (33 USC 1251 et. Seq.) and the Ohio Water Pollution Control Act (ORC 6111). This plan is covered by NPDES Permit OHC0000004. The Developer shall file a Notice of Intent at least 21 days prior to commencing earth-moving activities.

DEVELOPMENT: 4.58 acres (area of the property) with 3.89 acres disturbed. The project consists of a 13 lot subdivision with a 700 foot long culdesac.

SITE INFORMATION: AREA: 4.6 acres SLOPE: 0 to 4 percent

STORMWATER MANAGEMENT: City of Gahanna Regulations

IMPERVIOUS AREA CREATED: 1.1 acres of street, sidewalk, driveways and house roofs with a Curve Number of 98. This is 22% of the entire disturbed area.

EXG. COVER: Fallow - Brush, trees and grass PROPOSED COVER: subdivision

Preconstruction CN = 79.

Post construction CN -= 83

SOILS: BeB Bennington silt loam, 2-6% slopes

RECEIVING STREAM: The property drains to the southwest corner of Stygler Road and Sandburr Drive. There, it enters an existing 27" storm sewer that drains across Stygler Road to an outlet north of Ridenour Road into Big Walnut Creek. Big Walnut Run is part of the Upper Scioto Watershed (Hydrologic Unit 05060001).

The CONTRACTOR is required to maintain a copy of the NPDES Permit, specification packet, plans, and the hydraulic and hydrologic design packet at the construction site.

INSTREAM ACTIVITIES: None.

CONSTRUCTION DATES:

Beginning of construction - June 2014. End Construction - October 2014

SWPPP Log - An Excel spreadsheet is supplied with these plans for use during construction.

SPECIFICATIONS: Installation and materials shall be defined by:

1. City of Columbus Material and Construction Specifications (2012),
2. Rainwater and Land Development, 2nd Edition, (ODNR, 12/2006)
3. Construction Documents

NOTE: Where specifications conflict, the erosion control inspector or the Engineer shall determine which specification to use. The construction documents were prepared using COC Specifications.

PRACTICES (from *Rainwater and Land Development*):

Silt Fence Sediment Trap Construction Entrance Mulching Permanent Seeding Temporary Seeding Detention Basin Bioretention Cell

Temporary Seeding Mixes shall be selected from Table 7.8.1 of the *Rainwater and Land Development Manual (ODNR, 2007)* for the appropriate dates.

The preferred seeding mix is Perennial Ryegrass (40 lb/ acre of pule live seed), Turf Type Tall Fescue (40 lb/acre PLS) and Annual Ryegrass (40 lb/acre PLS) until August 15th, then Perennial Rye (40 ib./acre PLS), Turf Type Tall Fescue (40 il/acre PLS) and Annual Ryegrass (40 ib/acre PLS)..

Permanent Seeding Mixes shall be selected from Table 7.10.2 of the *Rainwater and Land Development Manual (ODNR, 2007)* for the appropriate dates.

The preferred seeding mix is Turf Type Tall Fescue (90 lb/acre PLS)

Mulching shall conform to *Mulching, Rainwater and Land Development Manual (ODNR, 2007)* page 39.

Alternative seeding mixes and mulching are available in the City of Columbus *Material and Construction Specifications (2012)*, the Ohio D.O.T. *Material and Construction Specifications(2013)* and the NRCS *Technical Guide Reference File*. Additional guidance will be supplied on request.

The times when seeding and mulching are required are listed in OEPA General Permit OHC000004 under Part II.B Table 1 and Table 2.

MAINTENANCE: All Erosion Control Practices shall be inspected once per week and immediately after any rainfall/runoff event. Repairs shall be made within three working days and maintenance problems that are considered critical to the Engineer, Erosion Control Inspector (by request) or the OEPA shall be repaired within 24 hours.

The Contractor shall provide for cleaning Stygler Road at the end of each construction day. Gahanna or the erosion inspector may require the Contractor to clean the street at more frequent intervals as necessary to protect infrastructure and the safety of the public.

CONSTRUCTION SEQUENCE

(1) Notify the Erosion Control Inspector that construction is about to start. Install silt fence as needed before each step of construction. Maintain as needed.

(2) Install silt fence. This is intended to protect Stygler Road on the east and the private property to the south. The remaining property lines drain into the site. If runoff is observed leaving the site, install additional silt fence as directed by the erosion control inspector, the Engineer or the City.

(3) Install Dandy Bags™ on existing catch basins as shown.

(4) Install a construction entrance off of the existing driveway. Be prepared to clean the pavement daily.

(5) Install the outlet pipes and Hickenbottom perforated risers. There are no orifice plates for these structures. Excavate the sediment traps as shown. Install the Sediment Trap Outlet Structures and silt fence baffles. The sediment traps serve as the main sediment control practice during construction of the project.

(6) Construct the final grade of the detention basins outside of the sediment traps. Raise CB1 (existing) to the planned grade. Place excavated spoil along the north side of Evelyn Lane. If the excavation uncovers subsoil, over-excavate subsoil by a minimum of 4 inches (0.33 feet) and fill with topsoil to grade.

(7) Install the headwall, storm sewer and catch basins [6], [7], [8], and [9]. This will control the surface water and drainage from the northwest corner of the site.

(8) Install Dandy Bags™ and Dandy Sacks™ on proposed catch basins as they are installed.

(9) Install the pipe and Curb Inlet CB02. Install Dandy Curb™ on curb inlets as they are installed. Install silt fence over the opening for the inlet pipe and place No. 57 aggregate to cover the silt fence and the opening.

(10) Install the sanitary sewer lines, services and manholes.

(11) Install the 8" water main and services.

(12) Excavate, fill and grade Evelyn Lane.

(13) Install the street lighting and private utilities.

(14) Install the Curb Inlet CB03 and remove the aggregate from CB02.

(15) Proof roll, correct the subgrade, install concrete curbs and concrete base course. Install the intermediate course of asphalt.

(16) Final grade the lots, drainage channels, seed and mulch the disturbed areas.

(17) Remove the Sediment Trap at CB04 and install the outlet structure and Bioretention Cell. Sediment and excavated material can be spread on the north side of the graded fill on lots 7 through 10. Do not drive in the channel between lots 8 and 9.

A dewatering corral or dewatering sock can be set on the back side of Lot 7. This will drain into CB08 and bypass the site. Lot 7 should be undisturbed grass as little or no fill is to be placed there.

The riprap can be re-used around the outlet structure or removed from the site.

The No. 57 aggregate, if cleaned of silt, can be reused in the bottom layer of the Bioretention Cell.

Install silt fence around the Bioretention Cell to limit the amount of sediment that enters the cell.

(18) Repeat the process for the Sediment Trap at CB01. Spread sediment and excavated material on Lots 3 through 6. Do not drive in the channel between Lots 2 and 3.

A dewatering sock can be set up on the back of lots 5 through 7. This will drain back into the detention basin but this area should be relatively undisturbed grass.

Riprap and No 57 aggregate from the Sediment Trap can be reused at Headwall HW06.

(19) Install Permanent Seeding and Mulch all disturbed areas.

(20) Remove the silt fences when the area is stabilized.

ALL EROSION AND SEDIMENT CONTROL PRACTICES ARE SUBJECT TO FIELD MODIFICATION BY THE ENGINEER, THE INSPECTOR AND THE OHIO EPA.

REVISIONS:

BUSTEREVE LLC DEVELOPMENT
NOTES and SWPPP
OAK GROVE OF GAHANNA
4185 STYGLER ROAD
GAHANNA
FRANKLIN COUNTY, OHIO

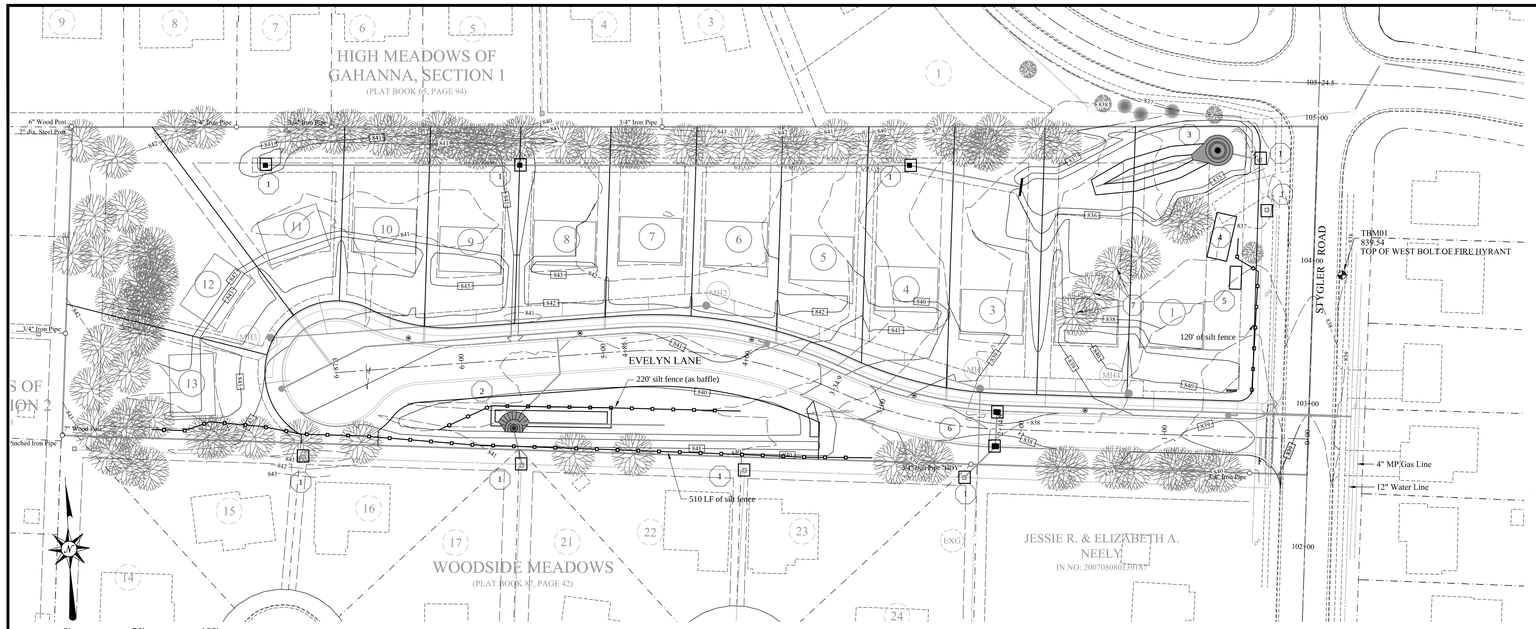
STATE OF OHIO
CASEY C. ELLIOTT
E-049721
REGISTERED
PROFESSIONAL ENGINEER

Approved: Casey Elliott
PE 049721 PS 7759
Date: 03/27/2014

CASEY C. ELLIOTT
PROFESSIONAL ENGINEER
212 WEST HIGH STREET
LONDON, OHIO 43140
PHONE: 740-852-1300 FAX: 740-852-2212

Contract: 13107

S2



1. MARK 1 - Protect *existing and installed catch basin inlets* with *DANDY BAGS(TM)* (see Detail 8) and *installed catch basins* with DANDY SACKS (see Detail 6). The Dandy Sacks are a permanent installation.
2. MARK 2 - Sediment Trap at Catch Basin 04. See design information at right and Detail 1
3. MARK 3 - Sediment Trap at Catch Basin 01. See design information at right and Detail 2
4. MARK 4 - Construction Entrance. See Detail
5. MARK 5 - Concrete Cleanout. See Detail.
6. MARK 6 - Curb inlet Protection. Protect Curb Inlets with Dandy Curb assemblies
7. MARK 7 - Remove Red Maple Trees as marked

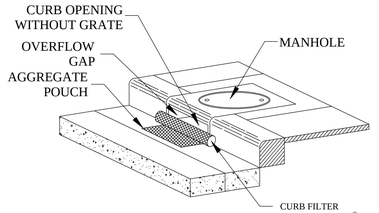
DANDY CURBS
SPECIFICATIONS

NOTE: THE DANDY CURB WILL BE MANUFACTURED IN THE U.S.A. FROM A WOVEN MONOFILAMENT FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

DANDY CURB™ (SAFETY ORANGE)

Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	1.62 (365) X 0.09 (200)
Grab Tensile Elongation	ASTM D 4632	%	24 X 10
Puncture Strength	ASTM D 4833	kN (lbs)	0.40 (90)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	3097 (450)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.51 (115) X 0.33 (75)
UV Resistence	ASTM D 4355	%	90
Apparent Opening Size	ASTM D 4751	Mm (US Std Sieve)	0.425 (40)
Flow Rate	ASTM D 4491	l/min/sft (gal/min/ft)	1907 (145)
Permitivity	ASTM D 4491	Sec	2.1

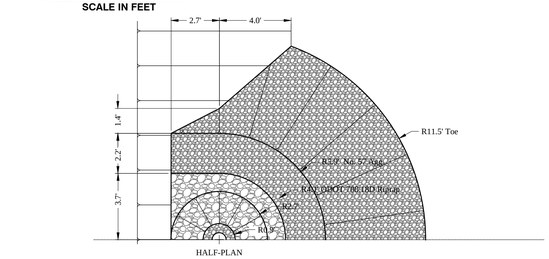
*Note: All Dandy Curbs™ can be ordered with our optional oil absorbents

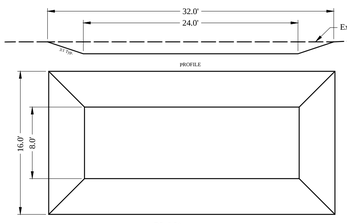


DANDY CURB™
5 DETAIL - DANDY CURB (TM)
NTS

SEDIMENT TRAP DESIGN @ CB01 (MARK 3)			
Drainage Area		3.67	AC
Dewatering Storage	Design Volume	1,800	CF/AC
	Required Volume	6,610	CF/AC
Sediment Storage	Design Volume	1,000	CF/AC
	Required Volume	3,672	CF/AC
Top of Dam		836.50	FT
	Freeboard	0.5	
Dewatering Pool		836.00	FT
	Surface Area	7,506	SF
	Depth	1.0	FT
	Sideslope	3.0	
	Volume	6,644	CF/AC
	Elevation	835.00	FT
	Surface Area	5,782	SF
Sediment Pool		834.6	
	Surface Area	1,719.0	FT
	Depth	3.5	FT
	Sideslope	2.0	
	Volume	3,833	CF/AC
Bottom		831.10	FT
	Surface Area	471	SF

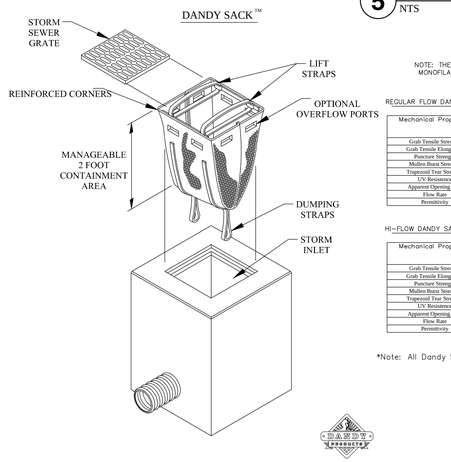
SEDIMENT TRAP DESIGN @ CB04 (MARK 2)			
Drainage Area		1.27	AC
Dewatering Storage	Design Volume	1800	CF/AC
	Required Volume	2,286	CF/AC
Sediment Storage	Design Volume	1000	CF/AC
	Required Volume	1,270	CF/AC
Top of Dam		841.0	FT
	Freeboard	1.0	
Dewatering Pool		840.0	FT
	Surface Area	7334.0	SF
	Depth	0.9	FT
	Volume	3829.5	CF/AC
Sediment Pool		839.1	FT
	Average Width	14.0	FT
	Average length	84.0	FT
	Surface Area	1176.0	SF
	Depth	1.4	FT
	Sideslope	2.0	
	Volume	1284.2	CF/AC
Bottom		837.7	FT
	Average Width	8.4	FT
	Average length	78.4	FT
	Surface Area	658.56	SF





OPERATION: Concrete suppliers may use the concrete wash sump to clean their trucks and chutes and to dispose of excess concrete. Concrete will be removed from the sump and trucked to a construction waste disposal facility. The owner may optionally use the concrete on site if appropriately crushed as gravel or erosion control material. The material may be buried on site at the owner's discretion.
NOTE: Locate the Sump in an area that excludes all surface water. Surface watr can be directed away form the sump using surface diversions. Excess water must be removed form the construction site and disposed of at a construction waste disposal facility.
ALTERNATIVE: Alternative methods of storing concrete waste are permitted upon approval of the Inspector and the Engineer.

3 DETAIL - CONCRETE WASH OUT SUMP
1/8" = 1'



DANDY SACK™
SPECIFICATIONS

NOTE: THE DANDY SACK™ WILL BE **MANUFACTURED IN THE U.S.A.** FROM A WOVEN MONOFILAMENT FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

REGULAR FLOW DANDY SACK™ (BLACK)

Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	1.78 (400) x 1.40 (315)
Grab Tensile Elongation	ASTM D 4632	%	15 x 15
Puncture Strength	ASTM D 4833	kN (lbs)	0.67 (150)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	5506 (800)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.67 (150) x 0.73 (165)
UV Resistence	ASTM D 4355	%	90
Apparent Opening Size	ASTM D 4751	Mm (US Std Sieve)	0.425 (40)
Flow Rate	ASTM D 4491	l/min/sft (gal/min/ft)	2852 (70)
Permitivity	ASTM D 4491	Sec	0.90

HI-FLOW DANDY SACK™ (SAFETY ORANGE)

Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	1.62 (365) X 0.89 (200)
Grab Tensile Elongation	ASTM D 4632	%	24 X 10
Puncture Strength	ASTM D 4833	kN (lbs)	0.40 (90)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	3097 (450)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.51 (115) X 0.33 (75)
UV Resistence	ASTM D 4355	%	90
Apparent Opening Size	ASTM D 4751	Mm (US Std Sieve)	0.425 (40)
Flow Rate	ASTM D 4491	l/min/sft (gal/min/ft)	5907 (145)
Permitivity	ASTM D 4491	Sec	2.1

*Note: All Dandy Sacks™ can be ordered with our optional oil absorbent pillows

6 DETAIL - DANDY SACK (TM)
NTS

SILT FENCE INSTRUCTIONS

INSTALLATION - Silt fence shall be constructed according to the construction sequence or before any earth-disturbing activity.

Silt fence shall be installed according to the plans. If site conditions do not match the plans, contact the Engineer to correct the design. Silt fence should be installed on the contour to spread the effluent over the length of the fence. The ends of the fence should be higher than the top of the silt fence along the length of the fence to prevent water from passing around the end of the fence.

Preserve at least 5 feet of vegetation uphill of the silt fence. If this is not possible, seed the disturbed area immediately.

The silt fence shall be a min. 16" tall and have 8" of fabric buried in a 6" deep trench. Lay the excess material in the bottom of the trench and compact soil over the silt fence.

The stakes shall be located on the downhill side of the silt fence.

Roll the stakes from adjacent sections of silt fence together and drive them together.

MAINTENANCE - Inspect the silt fence weekly and after each runoff event. Report any problems and repairs IN WRITING to the erosion control inspector.

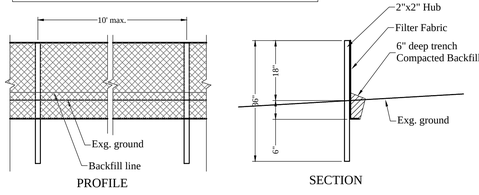
Promptly repair blowouts, torn fabric and erosion. If the silt fence is topped or silt-laden water bypasses the silt fence, consult with the Engineer and erosion control inspector to correct the installation.

NOTE: Silt fence fabric is meant to filter silt. Suspended clay in water can still pass through silt fence fabric. Do not expect effluent to be clear water.

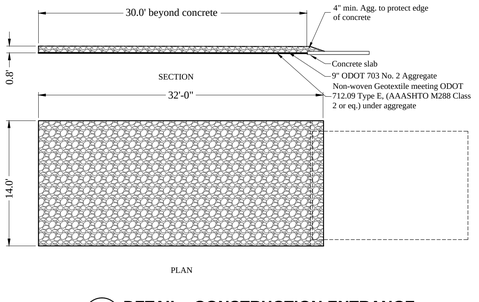
MATERIALS - Hubs shall be 2"x2"x 36" hubs made of hardwood or douglas fir.

Silt Fence shall meet the following:

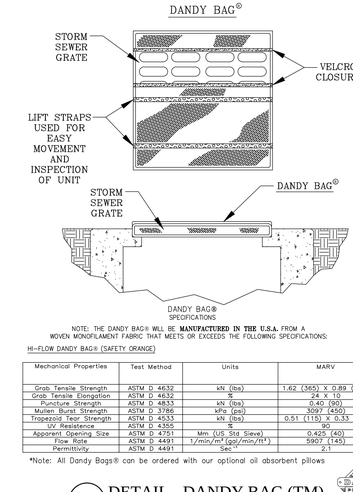
Fabric Properties	Control Values	Test Method
Tensile Strength	90 lb min.	ASTM D 1682
Burst Strength	190 psi min.	ASTM D 3786
Slurry Flow Rate	0.3 gpm/lf max.	
Eq. Opening Size	No. 40-80	US Sieve CW-02215
Ultraviolet Resistence	90% min.	ASTM G 26



4 DETAIL - SILT FENCE INSTALLATION
3/8" = 1'



7 DETAIL - CONSTRUCTION ENTRANCE
1" = 1/4'



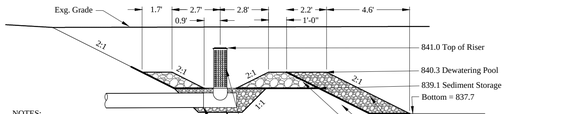
NOTE: THE DANDY BAG® WILL BE **MANUFACTURED IN THE U.S.A.** FROM A WOVEN MONOFILAMENT FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

HI-FLOW DANDY BAG® (SAFETY ORANGE)

Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	1.62 (365) X 0.89 (200)
Grab Tensile Elongation	ASTM D 4632	%	24 X 10
Puncture Strength	ASTM D 4833	kN (lbs)	0.40 (90)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	3097 (450)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.51 (115) X 0.33 (75)
UV Resistence	ASTM D 4355	%	90
Apparent Opening Size	ASTM D 4751	Mm (US Std Sieve)	0.425 (40)
Flow Rate	ASTM D 4491	l/min/m² (gal/min/ft²)	5907 (145)
Permitivity	ASTM D 4491	Sec⁻¹	2.1

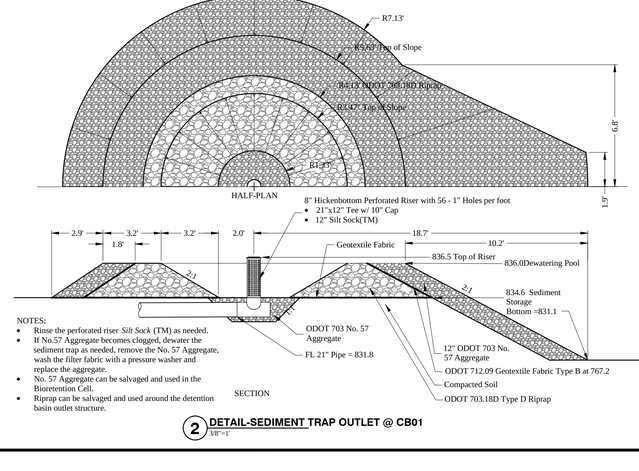
*Note: All Dandy Bags® can be ordered with our optional oil absorbent pillows

8 DETAIL - DANDY BAG (TM)
NTS



NOTES:
- Rinse the perforated riser *Silt Sock* (TM) as needed.
- If No.57 Aggregate becomes clogged, dewater the sediment trap as needed, remove the No. 57 Aggregate, wash the filter fabric with a pressure washer and replace the aggregate.
- No. 57 Aggregate can be salvaged and used in the Bioretention Cell.
- Riprap can be salvaged and used around the detention basin outlet structure.

1 DETAIL-SEDIMENT TRAP OUTLET @ CB04
3/8"=1'



NOTES:
- Rinse the perforated riser *Silt Sock* (TM) as needed.
- If No.57 Aggregate becomes clogged, dewater the sediment trap as needed, remove the No. 57 Aggregate, wash the filter fabric with a pressure washer and replace the aggregate.
- No. 57 Aggregate can be salvaged and used in the Bioretention Cell.
- Riprap can be salvaged and used around the detention basin outlet structure.

2 DETAIL-SEDIMENT TRAP OUTLET @ CB01
3/8"=1'

REVISIONS:

BUSTEREVE LLC DEVELOPMENT
EROSION CONTROL PLAN
OAK GROVE OF GAHANNA
4185 STYGLER ROAD
FRANKLIN COUNTY, OHIO
GAHANNA

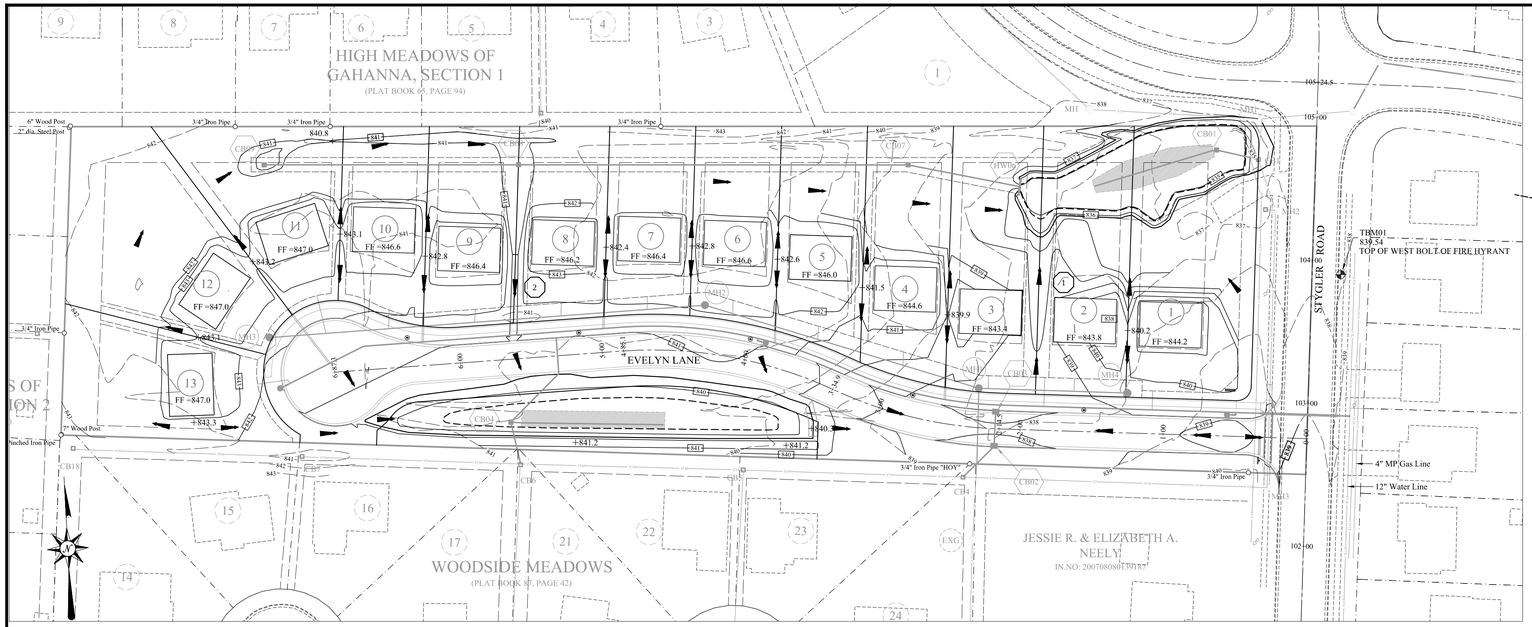
STATE OF OHIO
CASEY C. ELLIOTT
E-049721
REGISTERED
PROFESSIONAL ENGINEER

Approved: Casey Elliott
PE 049721 PS 7759
Date: 03/29/2014

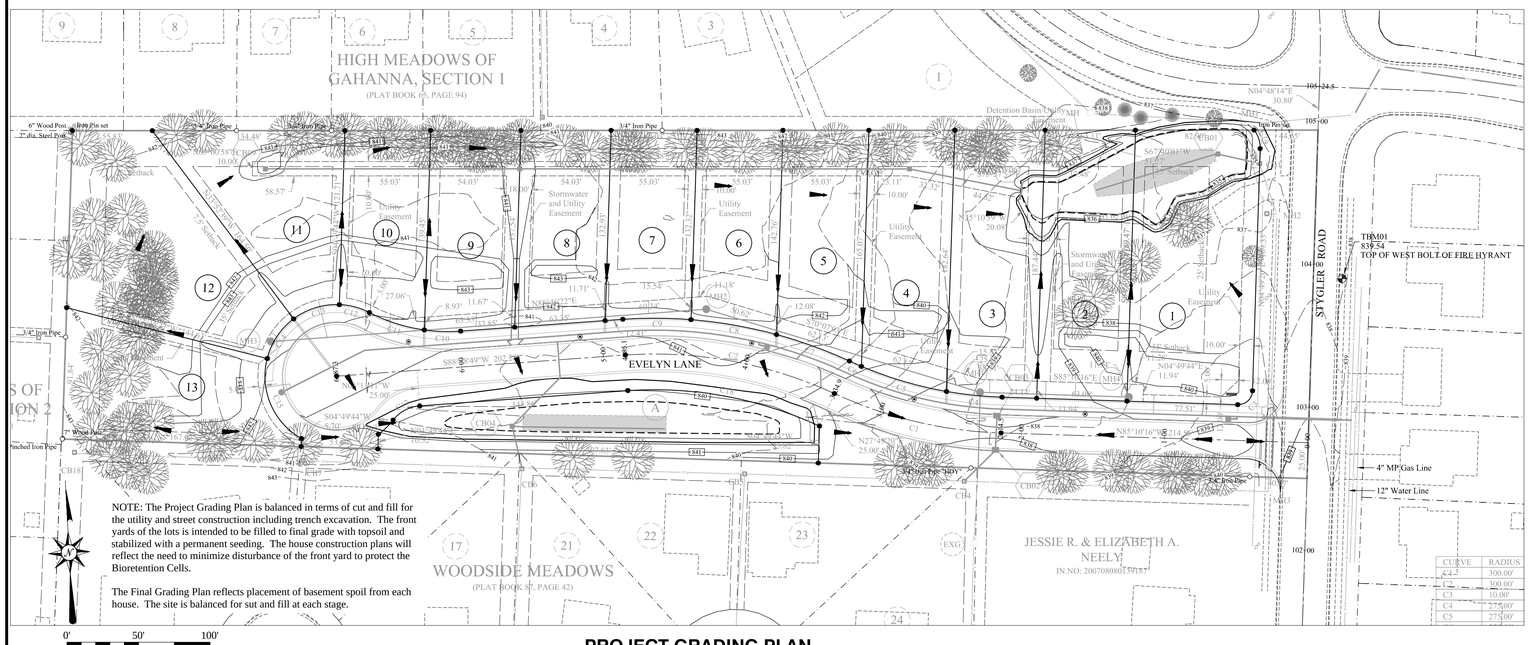
CASEY C. ELLIOTT
CONSULTING ENGINEER
212 WEST HIGH STREET
LONDON, OHIO 43140
(740)852-3000 FAX (740)852-2212

Contract: 13107

S3



FINAL GRADING PLAN



NOTE: The Project Grading Plan is balanced in terms of cut and fill for the utility and street construction including trench excavation. The front yards of the lots is intended to be filled to final grade with topsoil and stabilized with a permanent seeding. The house construction plans will reflect the need to minimize disturbance of the front yard to protect the Bioretention Cells.

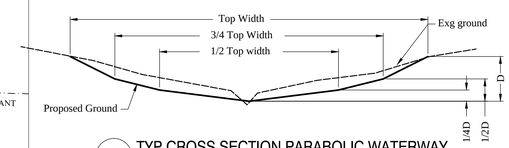
The Final Grading Plan reflects placement of basement spoil from each house. The site is balanced for sut and fill at each stage.

CURVE	RADIUS
C2	300.00'
C3	10.00'
C4	275.00'
C5	275.00'

PROJECT GRADING PLAN

1 MARK 1 -Parabolic Channel between Lot 1 and LOT 2 with a Topwidth of 20 feet and a depth of 1.0 feet.

2 MARK 2 - Parabolic Channel between LOT 8 and LOT 9 with a Topwidth of 12 feet and a depth of 1.0 feet.



1 TYP CROSS SECTION PARABOLIC WATERWAY
NTS

PARABOLIC WATERWAY SCHEDULE	Topwidth (ft)	Depth (ft)
Channel @ Lots 2-3	20	1.0
Channel @ Lots 8-9	20	0.8

CONSTRUCTION NOTES for BIORETENTION CELLS

SPECIFICATIONS

Planting Soil: Planting soil shall be loamy sand with at least 70% sand and less than 10% clay in the mineral fraction of the soil. In addition:

- pH shall be within 5.2 to 8.0.
- Soluble salts shall be less than 500 ppm.
- Decomposed organic matter 3-5% by weight (8-20% by volume)
- Phosphorus: 15 to 60 mg/kg (Mehlich III test)
- Sand shall meet AASHTO M-6 or ASTM C33 with a sand grain size distribution of 0.02" to 0.04".

Filter Sand: Sand shall clean and meet ASTM C 33

Filter Gravel: Gravel shall meet COC 703 No. 8 or No. 78 washed stone.

Gravel for the Sump: Gravel shall meet COC 703 No. 57 washed stone.

PROPOSED PLANTING SOIL MIX

Planting Soil: A mix that should meet the criteria:

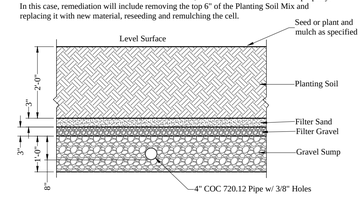
- 7.5 parts clean sand with <1% passing a No. 200 sieve
- 1.5 parts *in situ* soil (loam, silt loam, or clay loam texture required)
- 1.0 parts Organic Matter (leaf compost, pine bark fines, mulch fines)

Test phosphorus content before mixing. Supplier shall submit documentation that media meets the required criteria.

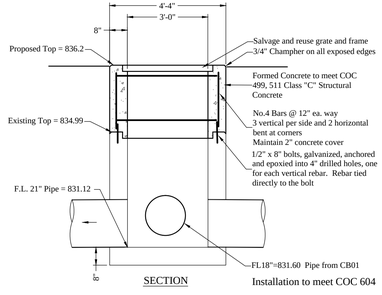
CONSTRUCTION SEQUENCE

1. Excavate the Bioretention cell to the neat lines. Remove all sediment, rocks and debris. Scarify the soil surface to a depth of 2" to promote infiltration.
2. Place gravel for the gravel sump leaving room for the drain pipe.
3. Place the drain pipe to a level grade and attach the end cap and outlet elbow.
4. finish grade the sump gravel.
5. Place the filter gravel
6. Place the filter sand
7. Place the planting soil. Grade of the finished surface is critical. The entire surface should be graded to within 0.1' tolerance to ensure even application of runoff water. Minimize construction traffic on the planting soil. Tracked equipment may be used to spread the planting soil.
8. Seed and mulch as specified.
9. Install silt fence 20 feet or 0.5 feet vertically outside of the limits of the Bioretention Cell. The silt fence is intended to protect the cell from sediment until the construction site is stabilized.

If the cell becomes contaminated with fine sediment, runoff water will not infiltrate properly. In this case, remediation will include removing the top 6" of the Planting Soil Mix and replacing it with new material, reseeding and remulching the cell.



2 DETAILS-BIORETENTION CELL
3/8"=1'



SECTION
Installation to meet COC 604

3 DETAIL-Raise top of Existing Catch Basin CB1
3/8"=1'

REVISIONS:

BUSTEREVE LLC DEVELOPMENT
GRADING PLANS
OAK GROVE OF GAHANNA
4185 STYGLER ROAD
FRANKLIN COUNTY, OHIO
GAHANNA

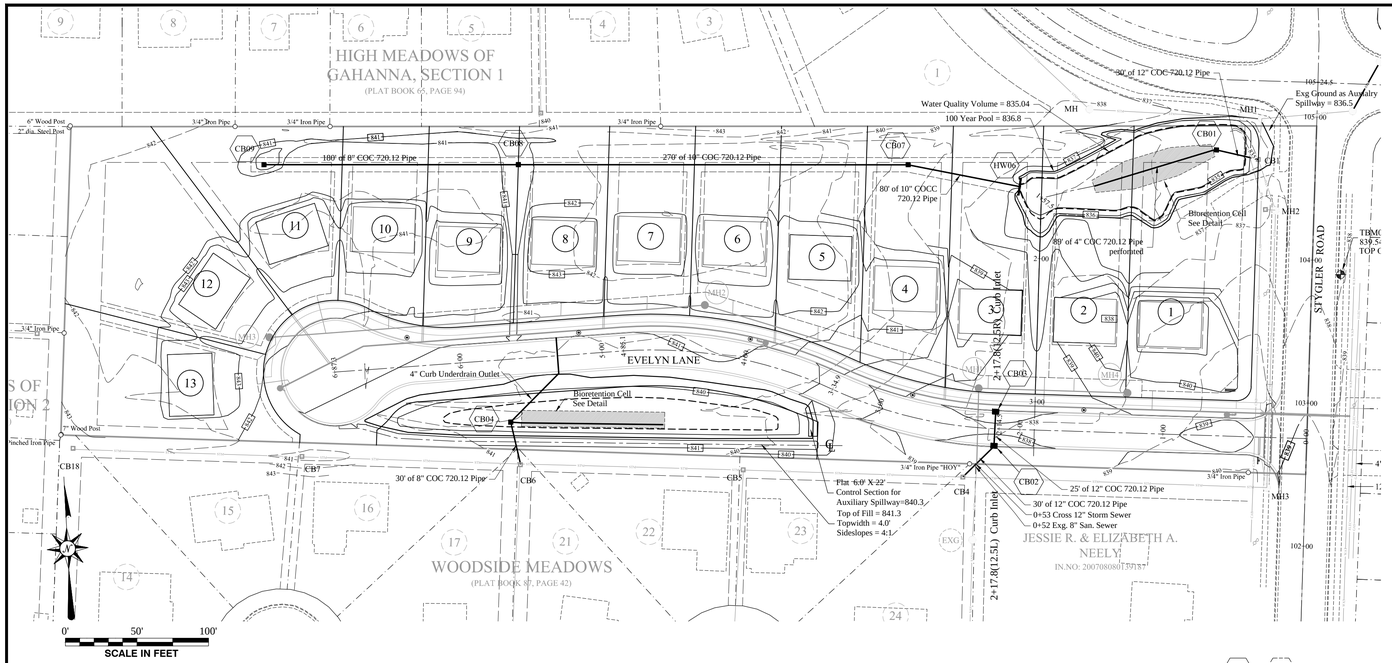
STATE OF OHIO
CASEY C. ELLIOTT
E-049721
REGISTERED PROFESSIONAL ENGINEER

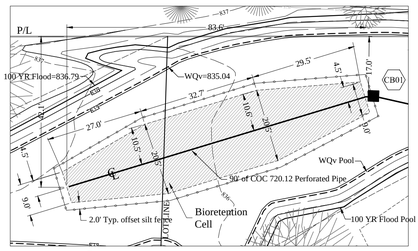
Approved: Casey Elliott
PE 049721 / PS 7759
Date: 03/25/2014

CASEY C. ELLIOTT
PROFESSIONAL ENGINEER
212 WEST HIGH STREET
LONDON, OHIO 43140
PHONE: 740 / FAX: 740-852-2212

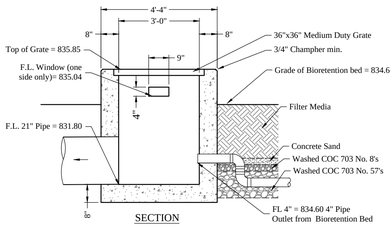
Contract: 13107

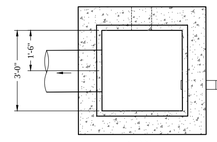
S4





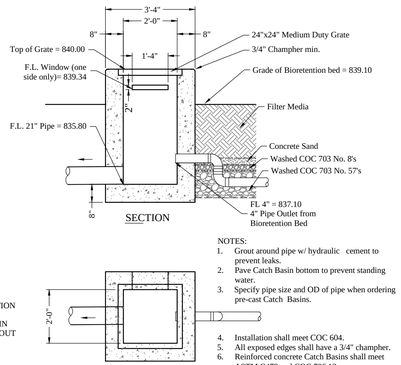
1 BIORETENTION CELL AT CB01
1"=20'





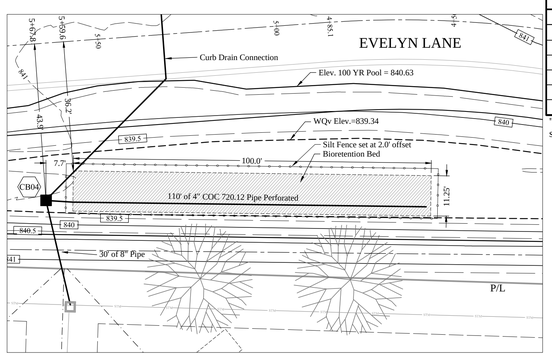
NOTES:
1. Grout around pipe w/ hydraulic cement to prevent leaks.
2. Pave Catch Basin bottom to prevent standing water.
3. Specify pipe size and OD of pipe when ordering pre-cast Catch Basins.
4. Installation shall meet COC 604.
5. All exposed edges shall have a 3/4" champher.
6. Reinforced concrete Catch Basins shall meet ASTM C478 and COC 706.13.

2 DETAIL-Pond Outlet Structure CB01
3/8"=1'

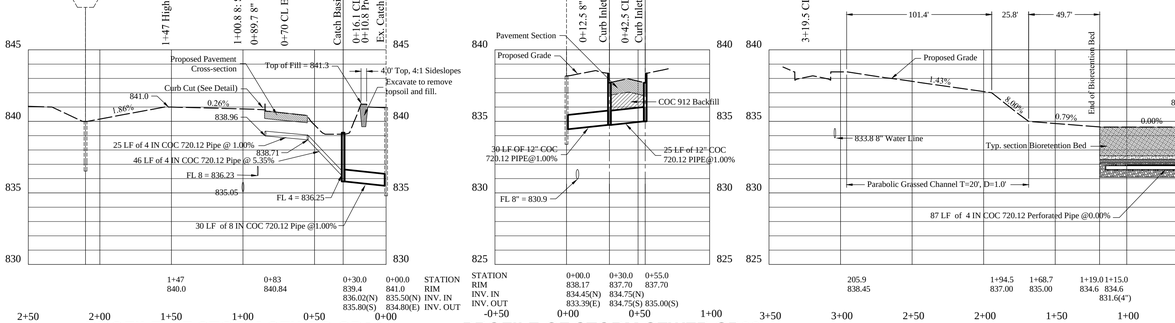


NOTES:
1. Grout around pipe w/ hydraulic cement to prevent leaks.
2. Pave Catch Basin bottom to prevent standing water.
3. Specify pipe size and OD of pipe when ordering pre-cast Catch Basins.
4. Installation shall meet COC 604.
5. All exposed edges shall have a 3/4" champher.
6. Reinforced concrete Catch Basins shall meet ASTM C478 and COC 706.13.

3 DETAIL-Pond Outlet Structure CB04
3/8"=1'



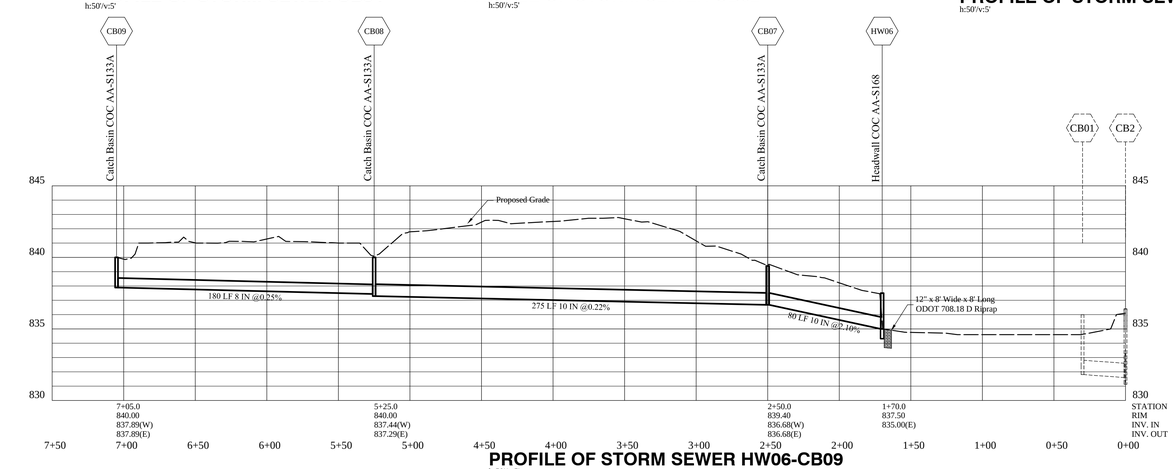
4 BIORETENTION CELL AT CB04
1"=20'



PROFILE OF STORM SEWER CB04
h:50'/v:5'

PROFILE OF STORM SEWER CB02
h:50'/v:5'

PROFILE OF STORM SEWER CB01
h:50'/v:5'



PROFILE OF STORM SEWER HW06-CB09
h:50'/v:5'

DETENTION BASIN AT CB01				
Total Area	A	3.67	Ac	
Impervious Area	I	0.58	Ac	
Ratio	i = I / A	0.16		
WQv =	**C x P x (A/12)**			
	C =	0.15		
	P =	0.75	in.	
	A =	3.67	Ac.	
WQv =		**0.03**	Ac-ft	
		1,461	cf	

BIORETENTION BASIN DESIGN				
	Surface Area	1,461	SF	ODNR
	Average Width	16.8	FT	
	Length	87	FT	
Coefficient of Transmissibility	K	0.50	FT/DAY	ODNR
	Outflow	0.0085	CFS	Media Controls

STORAGE SUMMARY				
Description	Elevation (ft)	Storage (CF)	Peak Outflow (CFS)	
Bioretention Cell	834.60	-	-	
WQv	835.04	1,499	0.009	
Q-5 YR	835.83	6,618	1.0	Critical Storm
Q-50 YR	836.75	14,076	21.2	
Q-100 YR	836.79	14,426	24.8	

DETENTION BASIN AT CB04				
Total Area	A	1.27	Ac	
Impervious Area	I	0.51	Ac	
Ratio	i = I / A	0.40		
WQv =	**C x P x (A/12)**			
	C =	0.28		
	P =	0.75	in.	
	A =	1.27	Ac.	
WQv =		**0.02**	Ac-ft	
		970	cf	

BIORETENTION BASIN DESIGN				
	Surface Area	1,111	SF	ODNR
	Average Width	11.25	FT	
	Length	98.7	FT	
Coefficient of Transmissibility	K	0.50	FT/DAY	ODNR
	Outflow	0.0064	CFS	Media Controls

STORAGE SUMMARY				
Description	Elevation (ft)	Storage (CF)	Peak Outflow (CFS)	
Bioretention Cell	839.10	-		
WQv	839.34	970	0.006	
Q-5 YR	839.92	4,362	0.7	Critical Storm
Q-50 YR	840.48	9,931	2.7	
Q-100 YR	840.63	11,008	3.0	

COMPOSIT WATERSHED DATA (On Site)				
Total Area	A	4.92	Ac	
Impervious Area	I	1.09	Ac	
Ratio	i = I / A	0.22		
WQv =	**C x P x (A/12)**			
	C =	0.18		
	P =	0.75	in.	
	A =	4.92	Ac.	
WQv =		**0.06**	**Ac-ft**	
		2,445	**cf**	

CRITICAL STORM

Basin	Existing Property	Proposed	
1 Year Rainfall	2.17	2.17	in.
Ave. CN	80.6	83.0	
Volume Runoff	0.70	0.84	in. - NRCS CN Method
Change in Runoff Volume		21%	
Design Storm	1-year		
Critical Storm		5-Year	Between 20-50% increase

CRITICAL STORM RELEASE SUMMARY

Storm Return Period	Flow from Existing Property	Permitted Release	Flow from Project	Comment
	(cfs)	**(cfs)**	**(cfs)**	
1	2.80	2.80	0.74	
2	4.94	2.80	1.41	
5	7.89	2.80	2.13	Critical Storm
10	10.37	10.37	3.52	
25	19.70	19.70	8.99	
50	25.62	25.62	11.77	
100	31.73	31.73	25.51	

"*Flow from Project*" includes the combined flows from CB01, CB02 and CB04. The peak flow shown is the largest combined flow at a given time during the event.

REVISIONS:

BUSTEREVE LLC DEVELOPMENTT
STORMWATER PLAN
OAK GROVE OF GAHANNA
4185 STYGLER ROAD
FRANKLIN COUNTY, OHIO
GAHANNA

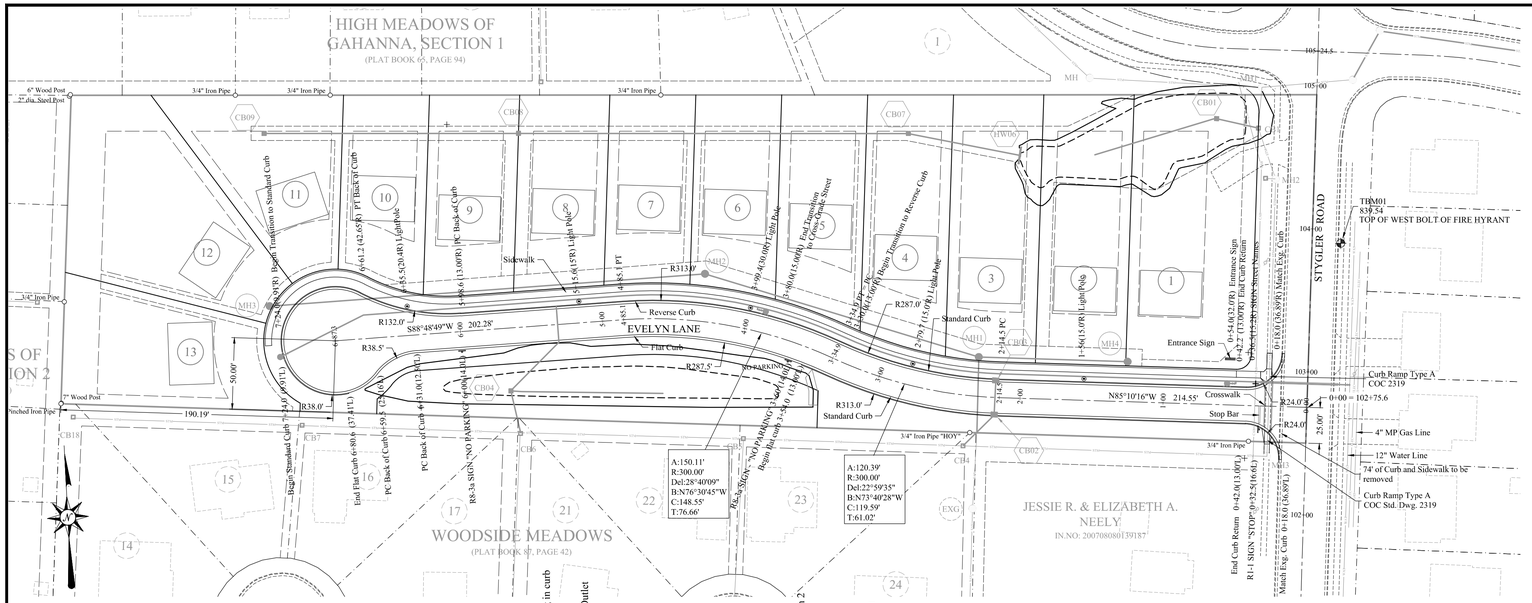
STATE OF OHIO
CASEY C. ELLIOTT
E-049721
REGISTERED
PROFESSIONAL ENGINEER

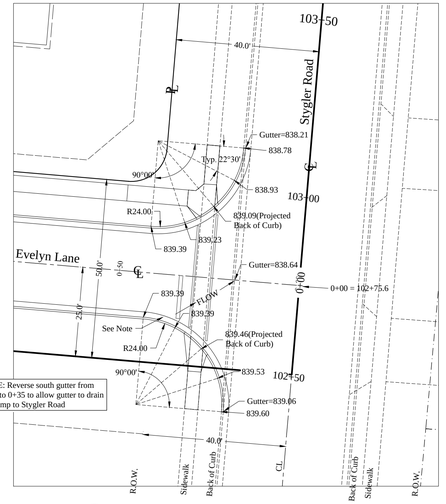
Approved: PE 04972 PS 7759
Date: 03/29/2014

CASEY C. ELLIOTT
PROFESSIONAL ENGINEER
1160 DUBLIN ROAD, SUITE 400
LONDON, OHIO 43140
(740)852-1300 FAX (740)852-2212

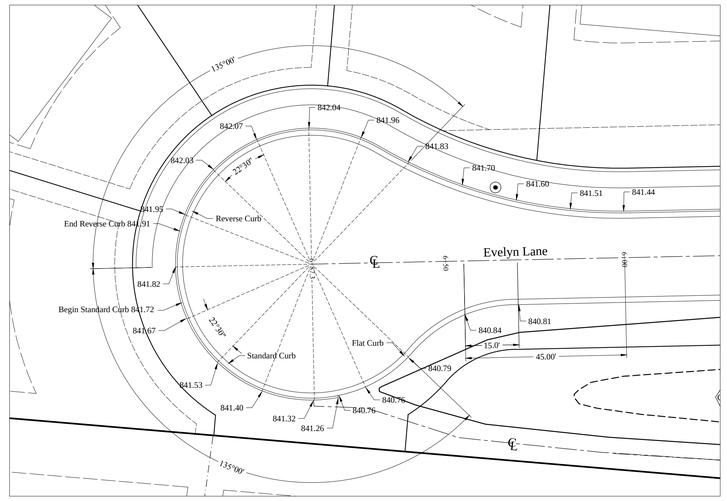
Contract: 13107

S5

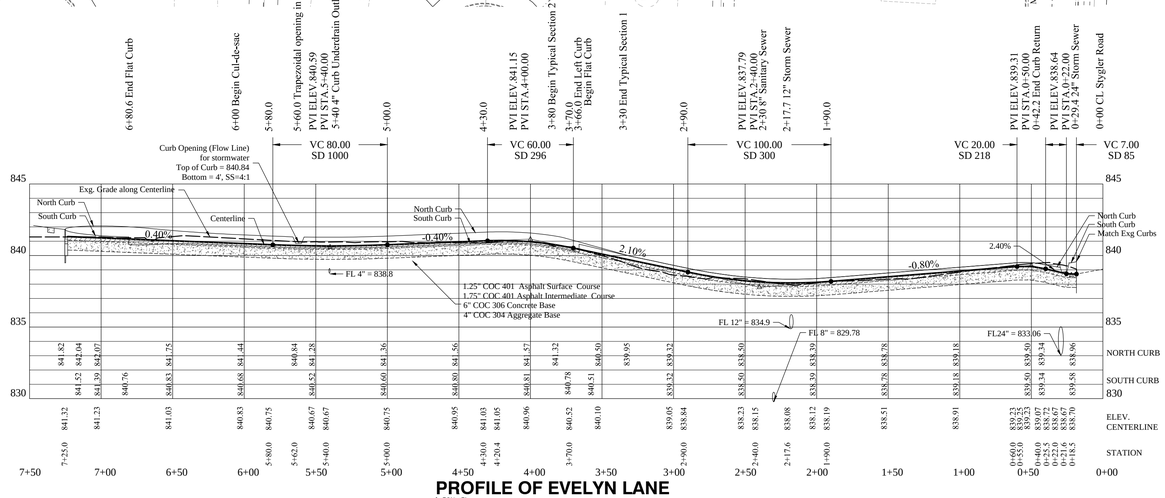




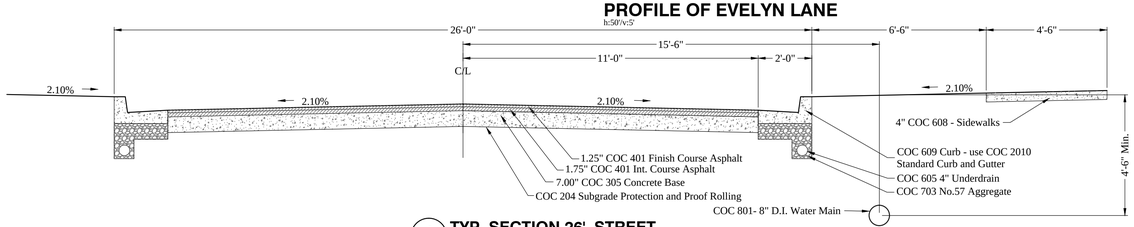
4 DETAIL-INTERSECTION
1"=20'



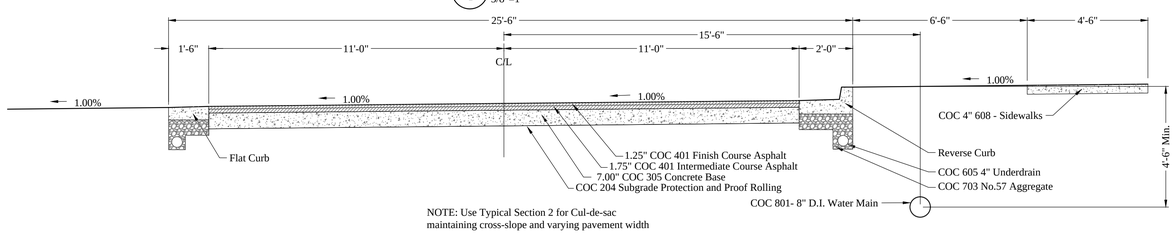
5 DETAIL-CUL-DE-SAC
1"=20'



PROFILE OF EVELYN LANE

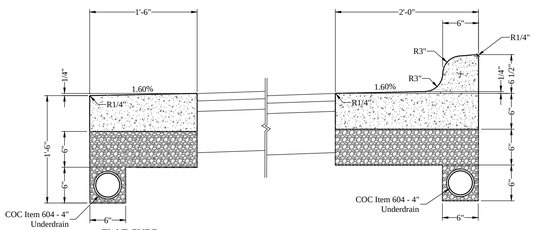


1 TYP. SECTION 26' STREET
3/8"=1'



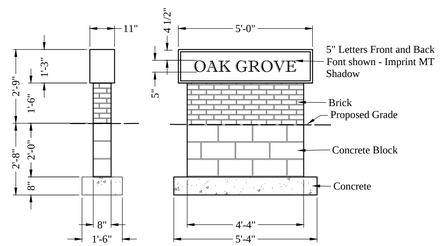
NOTE: Use Typical Section 2 for Cul-de-sac maintaining cross-slope and varying pavement width

2 TYP. SECTION 26' CROSS GRADE STREET
3/8"=1'



Notes:
- Materials and installation shall meet City of Columbus Item 608, for Sidewalks.
- Subgrade compactrion shall be complete before underdrain installation.

3 CURB DETAILS FOR CROSS GRADE STREET
1/2"=1'



6 DETAIL-ENTRANCE SIGN
3/8"=1'

REVISIONS:

BUSTEREVE LLC DEVELOPMENT

EVELYN LANE PLAN/PROFILE for OAK GROVE OF GAHANNA

4185 STYGLER ROAD

FRANKLIN COUNTY, OHIO

GAHANNA

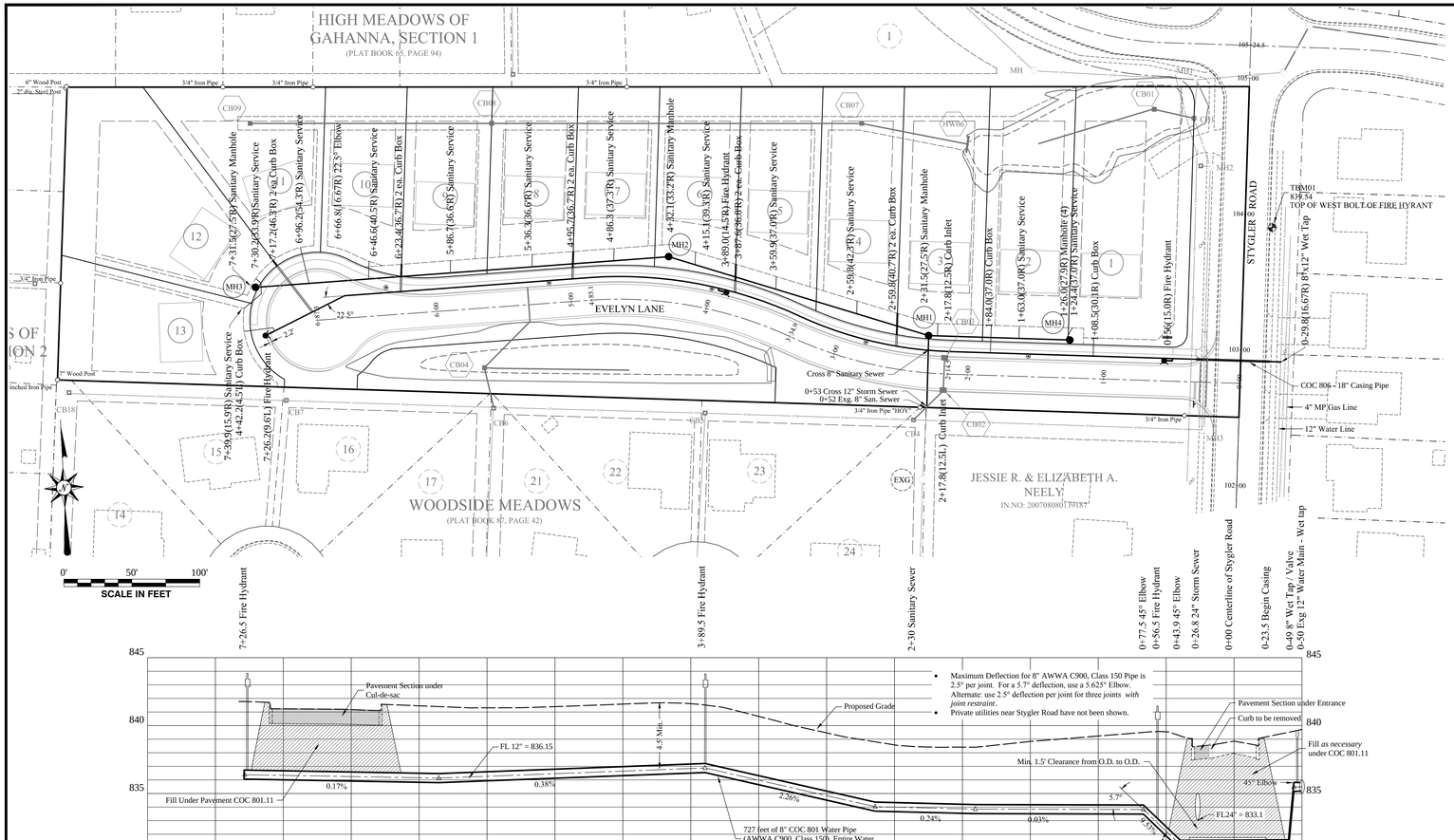
STATE OF OHIO
CASEY C ELLIOTT
E-049721
REGISTERED PROFESSIONAL ENGINEER

CASEY C. ELLIOTT
PROFESSIONAL ENGINEER
212 WEST HIGH STREET
LONDON, OHIO 43140
PHONE: 740 - FAX: (740)852-2212

Approved: Casey Elliott
PE 049721 / PS 7759
Date: 03/29/2014

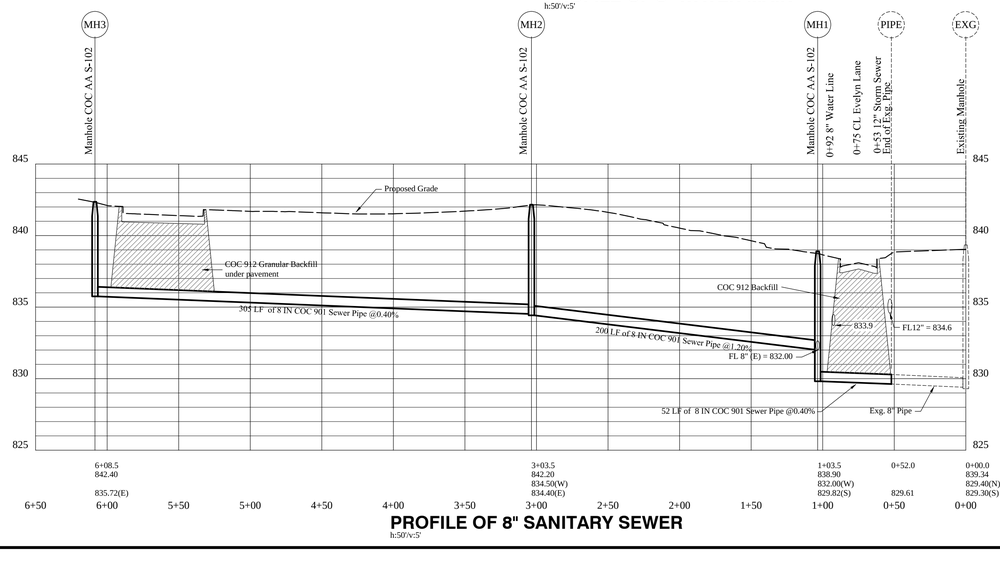
Contract: 13107

S6



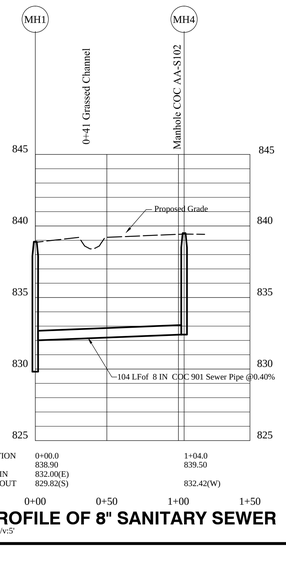
PROFILE OF 8" WATER MAIN

h:50'/v:5'



PROFILE OF 8" SANITARY SEWER

h:50'/v:5'



PROFILE OF 8" SANITARY SEWER

h:50'/v:5'

REVISIONS:

BUSTEREVE LLC DEVELOPMENT

WATER and SEWER PLANS

OAK GROVE GAHANNA

4185 STYGLER ROAD

FRANKLIN COUNTY, OHIO

GAHANNA

STATE OF OHIO
CASEY C. ELLIOTT
E-049721
REGISTERED
PROFESSIONAL ENGINEER

Approved: Casey Elliott
PE 049721 PS 7759
Date: 03/25/2014

CASEY C. ELLIOTT
CONSERVATION TECHNOLOGIES, INC.
212 WEST HIGH STREET
LONDON, OHIO 43140
(740)852-1500 FAX (740)852-2212

Contract: 13107

S7